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FINAL QUARTERLY DATA SUMMARY REPORT FOR SOIL VAPOR INTRUSION  
MONITORING (MAY-AUGUST 2010) NWIRP BETHPAGE NY  
11/1/2010  
TETRA TECH

**QUARTERLY DATA SUMMARY REPORT  
SOIL VAPOR INTRUSION MONITORING  
(MAY – AUGUST 2010)**

**NWIRP Bethpage**  
Bethpage, New York



**Naval Facilities Engineering Command  
Mid-Atlantic**

**Contract No. N62470-08-D-1001  
Contract Task Order WE06**

November 2010

**QUARTERLY DATA SUMMARY REPORT  
SOIL VAPOR INTRUSION MONITORING**

**(May - August 2010)**

**NAVAL WEAPONS INDUSTRIAL RESERVE PLANT  
BETHPAGE, NEW YORK**

**COMPREHENSIVE LONG-TERM  
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT**


**Submitted to:  
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## ACRONYMS

APU	Air Purification Unit
AS/SVE	Air Sparging/Soil Vapor Extraction
bgs	Below Ground Surface
CLEAN	Comprehensive Long-Term Environmental Action Navy
COC	Chain of Custody
CTO	Contract Task Order
°F	Degrees Fahrenheit
IND	Indoor air sample
INDB	Basement indoor air sample
INDL	Living space indoor air sample
IS	Initial Sampling
mL	Milliliter
mL/min	Milliliter per Minute
ND	Non Detect
NWIRP	Naval Weapons Industrial Reserve Plant
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
ODA	Outdoor air
PCE	Tetrachloroethene
PID	Photoionization Detector
ppm	Parts Per Million
PSSD	Post Sub-Slab Depressurization
PSVE	Post Soil Vapor Extraction system startup
PUS	Post Air Purification Unit Installation Sampling
PVC	Polyvinyl Chloride
SSB	Sub-Slab
SSD	Sub-Slab Depressurization
ST	Stack
SVPM	Soil Vapor Pressure Monitor
TCA	1,1,1-Trichloroethane
TCE	Trichloroethene
Tetra Tech	Tetra Tech NUS, Inc.
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound
µg/m <sup>3</sup>	micrograms per cubic meter

## 1.0 INTRODUCTION

Tetra Tech NUS Inc. (Tetra Tech) under Contract Task Order (CTO) WE06 prepared this Quarterly Data Summary Report for the Naval Facilities Engineering Command Mid-Atlantic under the Comprehensive Long-Term Environmental Action Navy (CLEAN) contract number N62470-08-D-1001. This Report summarizes field activities conducted during the months of May, June, July, and August 2010. These activities included indoor air, outdoor air, and sub-slab vapor sampling conducted at Home #3, sub-slab depressurization (SSD) system stack monitoring and Soil Vapor Pressure Monitor (SVPM) soil gas sampling on Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage, Long Island, New York and in the residential neighborhood east of Site 1 at NWIRP Bethpage, Long Island (Figures 1 and 2).

Site 1 – Former Drum Marshalling Area was impacted by the historic releases of chlorinated solvents and was remediated via an air sparging/soil vapor extraction (AS/SVE) system between 1998 and 2002. The treatment and remedial goals were based on protection of groundwater. Soil gas testing conducted in January 2008 indicated elevated concentrations of Volatile Organic Compounds (VOCs) existing along the eastern boundary of Site 1 that could potentially affect the adjacent residential neighborhood (Tetra Tech, 2008a). Additional soil gas testing was conducted in the Town of Oyster Bay right-of-ways from October 2008 through January 2009 to evaluate the potential migration of contaminated soil vapor off-site (Tetra Tech, 2009a). Based on evaluation of this soil gas data, indoor air, outdoor air, and sub-slab soil vapor sampling was recommended to evaluate potential vapor intrusion into residential homes.

From January through April 2009, soil vapor intrusion sampling was conducted in the residential neighborhood located east and adjacent to Site 1. A total of 18 residential homes were sampled during investigation activities through April 2009 (Tetra Tech, 2009b). As an interim measure, air purification units (APUs) were placed in homes to treat vapors that may have entered the homes. Based on the sample results, eight homes did not require further sampling/remediation. Due to the sub-slab vapor and indoor air sampling results, SSDs were installed in six residential homes in May 2009. A total of ten homes were sampled in June 2009 to monitor and evaluate mitigation measures installed in homes with APUs, including the six homes with SSD systems (Tetra Tech, 2009c).

In August 2009, the second post SSD system sampling event was conducted. The sampling focused on the collection of indoor air, outdoor air, and SSD system stack samples at the six homes with SSD systems in operation. The August sampling event also included an outdoor air evaluation in and around the neighborhood (Tetra Tech, 2009d). The outdoor air testing was conducted to evaluate outdoor air quality that may affect indoor air concentrations.

The third post SSD sampling event was conducted in November 2009 at ten residential homes. Indoor air samples were collected at all ten homes, while six homes with a SSD system had samples collected from the SSD system stack (Tetra Tech, 2010). APUs were present at all ten homes being sampled. Outdoor air samples were also collected simultaneously during the indoor air sampling to evaluate any influence of ambient air on indoor air quality.

In December 2009, construction of an SVE Containment System along the eastern boundary of Navy property was completed. System start up activities began in December 2009 and were finished in early January 2010. The SVE Containment System is currently in operation at Site 1.

In March 2010, indoor air monitoring activities were conducted at ten residential homes located in the neighborhood adjacent to Site 1. Indoor air and SSD system stack samples were collected from six homes that were equipped with SSD systems and APUs, and indoor air samples were collected from four homes with APUs only. Outdoor air samples were also collected simultaneously during the indoor air sampling to evaluate any influence of ambient air on indoor air quality.

Air and vapor samples were analyzed for VOCs via United States Environmental Protection Agency (USEPA) TO-15 method. With concurrence from the New York State Department of Health (NYSDOH) and the New York State Department of Environmental Conservation (NYSDEC) the TO-15 list was modified to analyze for site specific compounds associated with Site 1. This work was conducted in accordance with the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, 2006).

## **2.0 FIELD AND SAMPLING ACTIVITIES**

This section summarizes the field events that have taken place during July 2010 and August 2010.

### **2.1 July 2010 – Home #3**

In July 2010, air-monitoring activities were conducted at home #3. The home was not occupied at the time of the sampling event. The two APUs located in the basement and living space were removed and the SSD System was shut off two weeks prior to the indoor air-monitoring event.

A sub-slab (SSB) soil vapor sample, indoor air (basement and living space) sample, and outdoor air sample was collected at Home #3 on July 28, 2010. The outdoor air sample was collected along with an indoor air sample to evaluate potential influence of ambient air on indoor air quality. The field activities for this sampling event are summarized as follows:

- Scheduled sampling with homeowner
- Re-established previous sampling location
- Collected a SSB vapor, indoor air, and outdoor air sample
- Shipped and analyzed samples for the modified TO-15 VOCs

SSB soil vapor, indoor air, and outdoor air samples were collected using SUMMA<sup>®</sup> canisters (6 liter) with pre-set regulators. The temporary SSB soil vapor sample location was installed approximately 10 inches from previous sample locations. The indoor air sample was collected at the center of the basement. The outdoor air sample was placed in an upwind direction, at the South East corner of the back yard. The SSB soil vapor sample, and the indoor and outdoor air samples were obtained over a 24-hour time period.

The average temperature during the July 2010 sampling event was 85 degrees Fahrenheit (°F). The predominant wind direction ranged from south to southeast, while the wind speed was 0 to 5 miles per hour. There was no precipitation during this two-day event.

### **2.2 August 2010 – SSD Stack and SVPM Soil Gas**

In August 2010, the Sub-Slab Depressurization System stacks and the Soil Vapor Pressure Monitors (SVPM) were sampled for the modified TO-15 VOC analysis. Prior to the sampling activities, SVPMs were retrofitted with Geoprobe<sup>®</sup> stainless steel implants to minimize potential surface air infiltration and purge time. SVPM implant retrofit construction logs are located in Appendix A. Tubing (1/4 inch) with a six inch long stainless steel screen was placed in the one inch Polyvinyl Chloride (PVC) casing, down to

the screened interval in each SVPM. Annular space inside the PVC casing was filled with #1 Silica Quartz filter sand and a bentonite seal (approximately two foot thick) was installed approximately two or three feet above the screen. The annular space above the bentonite seal was filled with #1 Silica Quartz filter sand to approximately two feet below the top of casing. A cement and bentonite mix was installed in the remaining two feet of space to the top of casing. The polyethylene tubing was fixed with barbed fittings to a PVC cap and sampling port.

SSD System stack sampling activities began on August 24, 2010, after the completion of Geoprobe implant installation at the SVPMs. A photoionization detector (PID) measurement was collected from the SSD system stack sampling port prior to sample collection. PID measurements ranged between no detection and 1.8 parts per million (ppm) and were recorded on the air sampling log sheets (Appendix B). The SSD system stack samples were collected through polyethylene tubing, which was secured to a brass nipple fitting threaded into the SSD system exhaust sampling port. The SSD stack samples were obtained over a 30-minute time period. Once the sample was collected, the SSD System exhaust sampling port was sealed using a brass plug.

The SVE Containment System was shutdown at the completion of the SSD System stack sampling (August 24, 2010) and prior to SVPM soil gas sampling to avoid potential interferences and ensure collection of a representative soil gas sample. SVPM soil gas sampling was conducted on August 25, 2010 to August 26, 2010. The soil gas sampling procedures for each SVPM are as follows:

- Connect a tee and valve assembly to the sampling port of the SVPM
- Connect the vacuum pump to the tee and valve assembly
- Purge 2,500 to 3,000 milliliter (mL) of air from the soil gas point and sampling line using the vacuum pump at a rate of approximately 100 to 200 milliliter per minute (mL/min).
- Record the flow controller and SUMMA® canister number on the Soil Gas Sample Log Sheet
- Collect soil gas sample with SUMMA® Canister
- Ship and analyzed samples for the modified TO-15 VOCs

The SVE Containment System was re-started upon completion of SVPM sampling.

The average temperature during the August 2010 sampling event was 75 °F. The predominant wind direction was northerly and ranged from northwest to east northeast, while the wind speed was variable averaging 5 to 15 miles per hour during the sampling event. There was no precipitation during this four-day event.

## **2.3 Sample Management**

The air and soil vapor samples collected during this quarter were shipped to Air Toxics Ltd. in Folsom, CA via overnight carrier (Federal Express) for the modified TO-15 analysis list. The sampling procedures for indoor air, outdoor air, sub slab samples, SSD system exhaust stack samples, and SVPM samples were in accordance with NYSDOH Guidance for Evaluating Soil Vapor Intrusion (NYSDOH, 2006).

The field sampling team maintained air sampling log sheets and a field logbook that summarized the following information:

- sample identification
- date and time of sample collection
- sample location description
- identity of samplers
- sampling methods and devices (including canister and regulator ID numbers)
- vacuum before and after samples were collected
- wind speed and direction (for outdoor air sampling)
- ambient temperature (for outdoor air sampling)

Table 2-1 presents a sample summary of the indoor air, outdoor air, SSB soil vapor, SSD system exhaust stack, and SVPM soil gas samples collected. Sample date corresponds to the end of the sample collection period (i.e., 24-hour for indoor air). Sample containers were labeled with a unique sample identifier as presented on Table 2-1.

Additional information regarding sample identification and sample collection was recorded in the field logbook and/or on the corresponding sample log sheets. Sample log sheets were completed for each sample collected and are provided as Appendix B. Chain of Custody (COC) Forms are provided in Appendix C.

## **2.4 Deviation from Work Plan**

The August 2010 Soil Gas Sampling Work Plan Addendum for Site 1 identified additional samples to be collected to evaluate the effectiveness of the SVE Containment System. There were four deviations from the work plan during this quarter. Home #3 was not scheduled to be sampled during the month of July. However, the homeowner is planning to sell the home and requested the removal of the two APUs located in the basement and living space of the home. The NYSDOH and NYSDEC concurred that

indoor air quality samples should be collected from the home without the operation of the mitigation system in order to mimic natural conditions.

Three SVPMs, (SVPM-2007I, SVPM-11, and SVPM-12) were not sampled as scheduled during the August 2010 event. SVPM-2007I was retrofitted with a Geoprobe® implant on August 24, 2010 and was scheduled to be sampled on August 26, 2010. Field crews were unable to purge air from the poly tubing attached to the implant. An air compressor was used in an attempt to clear possible obstructions. The attempt was unsuccessful and the options for repair of the SVPM will be further evaluated. If a repair is not possible, SVPM-2007I will be abandoned and a new point will be installed to the same depth.

SVPM-11 and SVPM-12 were retrofitted with a stainless steel implant in January 2008. Field crews attempted to collect a soil vapor sample from both points during the August 2010 event and were unsuccessful. The implants would not provide a sustained flow of gas. Since the field crew could not increase the flow rate on SVPM-11 or SVPM-12, a sample could not be collected at either location. The repair of SVPM-11 and SVPM-12 will also be further evaluated. If the repairs are not possible, then SVPM-11 and SVPM-12 will be abandoned.

### 3.0 ANALYTICAL RESULTS

This section summarizes the analytical results from the indoor air, outdoor air, SSB soil vapor, SSD system stack, and SVPM soil gas sampling event conducted during July and August 2010. Based on previous sampling results, it was determined that trichloroethylene (TCE), tetrachloroethene (PCE), and 1,1,1-trichloroethane (TCA) represented the primary chemicals of concern. Therefore, the analytical results for TCE, PCE, and TCA are the focus of the analytical discussions in this section. All reported results are presented in Appendix D. The sample results for Home #3 are summarized in Table 3-1. Details for each of the air and soil gas samples that were collected from Home #3, SSD stacks, and SVPMs are on the air sample log sheets provided in Appendix B. COC forms and the laboratory analytical reports are in Appendix C and D, respectively. Data validation summaries are presented in Appendix E.

Analytical results from the indoor air sampling are compared to the air guideline values presented in the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, 2006). The air guideline values used for evaluation of indoor air and sub-slab soil vapor are in the table below.

**Air Guideline Values for Indoor Air and Sub-Slab Values**

Chemical	Indoor Air Guideline Value ( $\mu\text{g}/\text{m}^3$ )	Sub-Slab Guidance Value ( $\mu\text{g}/\text{m}^3$ )
Tetrachloroethene	100 <sup>1</sup>	1,000 <sup>2</sup>
Trichloroethane	5 <sup>1</sup>	250 <sup>2</sup>
1,1,1-Trichloroethane	100 <sup>2</sup>	1,000 <sup>2</sup>

<sup>1</sup> = Value derived from NYSDOH guidance (2006), Table 3.1

<sup>2</sup> = Value derived from NYSDOH guidance (2006), Table 3.3 (Matrix 1 and 2)

$\mu\text{g}/\text{m}^3$  = micrograms per cubic meter of air

#### 3.1 Home #3

The home was initially sampled on January 22, 2009. After sampling, an APU was installed in the basement as an interim mitigation measure. The sewer utility sump and observable cracks in the basement floor and walls were sealed at this time to reduce these potential pathways for soil vapor to enter the home. Based on the indoor air results, a second APU was installed on the first floor on February 26, 2009. Since the sub-slab concentrations for TCE and TCA were above the NYSDOH guidelines, an SSD system was installed on May 19, 2009 as a supplemental mitigation measure. Based on the SSD stack concentrations observed in September 2009, the SSD fan at Home #3 was upgraded after sample collection in November 2009 to increase the vacuum under the slab of the home.

During the July 2010 sampling event, a SSB soil vapor sample, indoor air sample (basement and living space), and outdoor air sample were collected at Home #3. At the request of the homeowner, the APUs located in the basement and living space were permanently removed. In order to mimic natural conditions in the house, the SSD system was shut off two weeks prior to the sampling event. Sample results from each event are summarized on Table 3-1.

The results of the July 2010 sampling of SSB soil vapor gas indicate that the concentrations of TCE, PCE, and TCA were below the NYSDOH air guideline sub-slab guidance values. In addition, concentrations of TCE, PCE, and TCA in sub slab soil gas have been reduced at an average of 99.9% since the initial sampling event in January 2009. Also, the living space indoor air concentrations and the basement indoor air concentrations, without the operation of the APUs or the SSD system, are below the NYSDOH indoor air guideline values. TCE concentrations decreased by approximately 99.9% in the basement indoor air sample and living space indoor air sample since the initial sampling in January 2009. PCE and TCA have also shown significant decreases in concentrations.

By comparing the SSD System stack sample result collected in August 2010 to the initial stack sample results collected in June 2009 at Home #3, the TCE and TCA concentrations in the soil vapor underneath the home has decreased by approximately 98% and 94%, respectively. PCE had an initial concentration that was significantly lower than the other chemicals of concern, and experienced a 35% reduction.

### **3.2 SSD Stack Sampling Summary**

Five SSD system stack samples were collected during the August 2010 sampling event. TCE concentrations in the five SSD stack samples have been reduced on average by 99.2% since the first sampling event in June 2009. PCE and TCA have similar decreases in concentrations at each SSD stack with TCA decreasing by 98.6% and PCE decreasing by 61.7%. The initial PCE contamination was lower than that of the other chemicals of concern, therefore the reduction of PCE was not as significant as TCE and TCA. Table 3-2 provides an analytical summary of the SSD system stack samples.

### **3.3 SVPM Sampling Summary**

Ten SVPMs were sampled in August 2010 (see table 3-3). Samples were collected 8 feet below ground surface (bgs) (shallow points), 20 to 25 feet bgs (intermediate depth points), and 44 to 49 feet bgs (deep points). An evaluation of chemical constituents over time indicates that TCE, PCE, and TCA concentrations have been reduced since the initial sampling events conducted in 2008. TCA concentrations were reduced approximately 99.9% at all three depths. TCE concentrations at the deep and intermediate depth were reduced approximately 99.6%. The average reduction of TCE at the

shallow depth was 78.5%. PCE had the highest reduction (88%) at the intermediate depth. PCE has decreased at the deep and shallow depth at an average of 89.4% and 49.6%, respectively. Table 3-3 provides an analytical summary of the soil gas sampling.

### **3.4 Outdoor Air Sampling Summary**

During the July 2010 and August 2010 sampling event, outdoor air samples were collected to evaluate potential influence of outdoor air on indoor air quality and to establish ambient outdoor quality. The outdoor air samples are used to represent upwind ambient air data at the time of indoor air sampling and soil vapor sampling. One outdoor air sample was collected during the July 2010 sampling event and four outdoor air samples were collected during the sampling event in August 2010. Table 3-4 provides an analytical summary of the outdoor air sampling conducted during the indoor air sampling events in July 2010 and August 2010. Although TCE, PCE, and PCA were detected in each of the samples, none of the detections were greater than NYSDOH air guideline values.

### **3.5 Sampling Summary**

An SVE Containment System was constructed along the eastern boundary of Site 1 and began full time operation in January 2010. This system is currently operating to prevent further off site migration of contaminated soil vapor and to the extent practical, remediate contaminated soil vapor located off site. Based on the July 2010 sampling results at Home #3, the indoor air concentrations of targeted VOC's are below the NYSDOH air guideline values even without the APU and SSD mitigation systems operating. Also, sample results from the August 2010 event, shows that the SSD system stack concentrations and SVPM soil vapor concentrations have continued to decrease since June 2009, especially after the start up of the SVE Containment System in January 2010.

In November 2010, another round of indoor air monitoring will be conducted in the residential homes to evaluate the effectiveness of the mitigation systems both in the houses and on the Navy property. Off site soil gas testing will continue to be conducted in the residential neighborhood to confirm the effectiveness of the SVE Containment System to prevent further off-site migration.

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United States Environmental Protection Agency (USEPA), 1999. Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air Second Edition Compendium Method TO-15 Determination Of Volatile Organic Compounds (VOCs) In Air Collected In Specially- Prepared Canisters And Analyzed By Gas Chromatography/ Mass Spectrometry (GC/MS). January.

## TABLES

**Table 2-1**  
**Sample Summary**  
**July 2010 and August 2010**  
**Site 1 - Former Drum Marshaling Area**  
**NWIRP Bethpage, New York**

Sample ID	Date(s) Collected	Duration of Sample	Sample Location	Event Type
BPS1-AR003-INDL-5	7/27/2010 - 7/28/2010	24 Hours	Living Space	PUS/PSSD/PSVE*
BPS1-AR003-INDL-5 DUP	7/27/2010 - 7/28/2010	24 Hours	Living Space	PUS/PSSD/PSVE*
BPS1-AR003-INDB-5	7/27/2010 - 7/28/2010	24 Hours	Basement	PUS/PSSD/PSVE*
BPS1-AR003-SSB3	7/27/2010 - 7/28/2010	24 Hours	Subslab	PUS/PSSD/PSVE*
BPS1-AR003-ODA3	7/27/2010 - 7/28/2010	24 Hours	ODA	PUS/PSSD/PSVE*
BPSI-AR002-ST05	8/24/2010	30 Minutes	SSD Stack	PSSD/PSVE**
BPS1-AR003-ST05	8/24/2010	30 Minutes	SSD Stack	PSSD/PSVE**
BPS1-AR004-ST05	8/24/2010	30 Minutes	SSD Stack	PSSD/PSVE**
BPS1-AR013-ST05	8/24/2010	30 Minutes	SSD Stack	PSSD/PSVE**
BPS1-AR013-ST05 DUP	8/24/2010	30 Minutes	SSD Stack	PSSD/PSVE**
BPS1-AR014-ST05	8/24/2010	30 Minutes	SSD Stack	PSSD/PSVE**
BPS1-AR002-ODA4	8/24/2010	8 Hours	ODA	PSSD/PSVE**
BPS1-SVPM-2002S	8/25/2010	30 Minutes	Soil Gas	PSSD/PSVE**
BPS1-SVPM-2002I	8/25/2010	30 Minutes	Soil Gas	PSSD/PSVE**
BPS1-SVPM-2002D	8/25/2010	30 Minutes	Soil Gas	PSSD/PSVE**
BPS1-SVPM-2003D	8/25/2010	30 Minutes	Basement	PSSD/PSVE**
BPS1-SVPM-ODA	8/25/2010	8 Hours	ODA	PSSD/PSVE**
BPSI-SVPM-2003I	8/26/2010	30 Minutes	Soil Gas	PSSD/PSVE**
BPSI-SVPM-2004I	8/26/2010	30 Minutes	Soil Gas	PSSD/PSVE**
BPSI-SVPM-2004I DUP	8/26/2010	30 Minutes	Soil Gas	PSSD/PSVE**
BPSI-SVPM-2004D	8/26/2010	30 Minutes	Soil Gas	PSSD/PSVE**
BPSI-SVPM-2007D	8/26/2010	30 Minutes	Soil Gas	PSSD/PSVE**
BPSI-SVPM-11S	8/26/2010	30 Minutes	Soil Gas	PSSD/PSVE**
BPSI-SVPM-12S	8/26/2010	30 Minutes	Soil Gas	PSSD/PSVE**
BPSI-SVPM-12S DUP	8/26/2010	30 Minutes	Soil Gas	PSSD/PSVE**
BPSI-SVPM-ODA	8/26/2010	8 Hours	ODA	PSSD/PSVE**

**Notes:**

DUP = Duplicate Sample

INDB = Basement Indoor Air

INDL = Living Space Indoor Air

ODA = Outdoor Air

PUS = Post Air Purification Unit Installation Sampling

PSSD = Post SSD Startup Sampling

PSVE = Post Soil Vapor Extraction Containment System startup

SSD = Sub-slab Depressurization System

ST = Stack

\*Air purification units were permanently removed and the SSD system was temporarily shut down on 7/13/10. Sample collection was completed on 7/28/2010 and the SSD was restarted shortly after the last sample was collected.

\*\*SVE Containment system was shut down approximately 24 hours prior to PSVE sampling

**Table 3-1**  
**Analytical Summary**  
**Home #3**  
**Site 1 - Former Drum Marshaling Area**  
**NWIRP Bethpage, New York**

Sample ID	Date Collected	Sample Type	Event Type	TCE (µg/m <sup>3</sup> )	PCE (µg/m <sup>3</sup> )	TCA (µg/m <sup>3</sup> )
<b>INDOOR AIR SAMPLES</b>		<b>NYSDOH Air Guideline Value</b>		5	100	100*
BPS1-AR003-IND2	2/18/2009	Living Space	IS	<b>110</b>	3.1	74
BPS1-AR003-IND5	3/12/2009	Living Space	PUS	2.8	ND	5.2
BPS1-AR003-IND5 DUP	3/12/2009	Living Space	PUS	3.0	ND	5.5
BPS1-AR003-INDL-01	6/23/2009	Living Space	PSSD	<b>16</b>	2.4	30
BPS1-AR003-INDL-02	8/26/2009	Living Space	PSSD	<b>10</b>	0.43 J	5.2
BPS1-AR003-INDL-03	11/17/2009	Living Space	PSSD	1.1	ND	5.2
BPS1-AR003-INDL-4	3/3/2010	Living Space	PSSD/PSVE	0.64	ND	3.7
BPS1-AR003-INDL-5	7/28/2010	Living Space	PSVE <sup>(2)</sup>	0.16 J	0.28 J	3.3
BPS1-AR003-INDL-5 DUP	7/28/2010	Living Space	PSVE <sup>(2)</sup>	0.15 J	0.28 J	2.9
BPS1-AR003-IND	1/22/2009	Basement	IS	<b>180</b>	4.3	95
BPS1-AR003-IND DUP	1/22/2009	Basement	IS	<b>180</b>	4.2	98
BPS1-AR003-IND3	2/26/2009	Basement	PUS	<b>34</b>	0.75	27
BPS1-AR003-IND3 DUP	2/26/2009	Basement	PUS	<b>31</b>	0.72	27
BPS1-AR003-IND4	3/12/2009	Basement	PUS	<b>32</b>	0.49 J	41
BPS1-AR003-INDB	4/30/2009	Basement	PUS	<b>52</b>	0.38 J	65
BPS1-AR003-INDB DUP	4/30/2009	Basement	PUS	<b>50</b>	0.54	64
BPS1-AR003-INDB-01	6/23/2009	Basement	PSSD	<b>79</b>	1.1	19
BPS1-AR003-INDB-02	8/26/2009	Basement	PSSD	<b>27</b>	1.3	4
BPS1-AR003-INDB-03	11/17/2009	Basement	PSSD <sup>(1)</sup>	<b>5.1</b>	0.58	0.78
BPS1-AR003-INDB-4	3/3/2010	Basement	PSSD/PSVE	ND	ND	ND
BPS1-AR003-INDB-5	7/28/2010	Basement	PSVE <sup>(2)</sup>	0.27 J	0.28 J	1.9
<b>SUB-SLAB SOIL VAPOR SAMPLES</b>		<b>NYSDOH Sub-Slab Guideline</b>		250*	1,000*	1,000*
BPS1-AR003-SSB	1/22/2009	Subslab	IS	<b>13,000</b>	130	<b>10,000</b>
BPS1-AR003-SSB2	8/26/2009	Subslab	PSSD	<b>260</b>	3.7	38
BPS1-AR003-SSB3	7/28/2010	Subslab	PSVE <sup>(2)</sup>	14	0.96	2.3
<b>SSD STACK SAMPLES</b>						
BPS1-AR003-ST01	6/22/2009	SSD Stack	PSSD	<b>7,700</b>	92	<b>3,600</b>
BPS1-AR003-ST02	8/25/2009	SSD Stack	PSSD	<b>10,000</b>	170	<b>4,200</b>
BPS1-AR003-ST03	11/16/2009	SSD Stack	PSSD	<b>6,200</b>	64	<b>2,900</b>
BPS1-AR003-DUP02	11/16/2009	SSD Stack	PSSD	<b>5,400</b>	61	<b>2,200</b>
BPS1-AR003-ST04	3/2/2010	SSD Stack	PSSD/PSVE	3.8	0.82	0.98
BPS1-AR003-ST05	8/24/2010	SSD Stack	PSSD/PSVE <sup>(2)</sup>	4.3	2.4	2.4

**Notes:**

TCE = Trichloroethene  
PCE = Tetrachloroethene  
TCA = 1,1,1-Trichloroethane  
INDB = Basement indoor air sample  
INDL = Living Space indoor air sample  
IS = Initial Sampling

PSSD = Post Sub-slab Depressurization (SSD) System Startup Sampling, APU also operating  
PUS = Post Air Purification Unit (APU) Installation Sampling  
PSVE = Post Soil Vapor Extraction Containment system startup

\* Value derived from Table 3.3 (Matrix 1 and 2), NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, 2006)

<sup>(1)</sup> After sample collection in November 2009, the SSD system fan was upgraded to increase the vacuum under the sub-slab of Home #3.

<sup>(2)</sup> Air purification units were removed and the SSD system was temporarily shut down on 7/13/10. Sample collection was completed on 7/28/2010 and the SSD was restarted shortly after the last sample was collected.

Highlighted rows show analytical results for this reporting period.

ST = SSD Stack sample  
SSB = Sub-slab Sample  
ND = not detected  
µg/m<sup>3</sup> = micrograms per cubic meter  
J = Estimated Value  
**BOLD** = Concentration exceeds NYSDOH Guideline value

Table 3-2  
Analytical Summary  
SSD System Stack Samples  
Site 1 - Former Drum Marshaling Area  
NWIRP Bethpage, New York

Home #	Mitigation Type	Date Collected	Sample ID	Sample Type	Event Type	TCE (µg/m <sup>3</sup> )	PCE (µg/m <sup>3</sup> )	TCA (µg/m <sup>3</sup> )
<b>2</b>	APU/SSD	1/21/2009	BPS1-AR002-SSB	Subslab	IS	<b>16,000</b>	310	<b>15,000</b>
		6/22/2009	BPS1-AR002-ST01	SSD Stack	PSSD	<b>11,000</b>	280	5,900
		8/25/2009	BPS1-AR002-ST02	SSD Stack	PSSD	<b>12,000</b>	460	<b>5,300</b>
		8/25/2009	BPS1-AR002-ST02 DUP	SSD Stack	PSSD	<b>12,000</b>	500	<b>5,400</b>
		11/16/2009	BPS1-AR002-ST03	SSD Stack	PSSD	<b>9,900</b>	330	<b>3,800</b>
		3/1/2010	BPS1-AR002-ST04 *	SSD Stack	PSSD/PSVE	11	2.4	1.7
		3/1/2010	BPS1-AR002-ST04-DUP *	SSD Stack	PSSD/PSVE	12	2.4	1.9
		8/24/2010	BPSI-AR002-ST05 <sup>(1)</sup>	SSD Stack	PSSD/PSVE	9.6 J	3.9 J	1.2 J
<b>3</b>	APU/SSD	1/22/2009	BPS1-AR003-SSB	Subslab	IS	<b>13,000</b>	130	<b>10,000</b>
		8/26/2009	BPS1-AR003-SSB2	Subslab	PSSD	<b>260</b>	3.7	38
		7/28/2010	BPS1-AR003-SSB3	Subslab	PSVE only	25	2.0 J	3.6 J
		6/22/2009	BPS1-AR003-ST01	SSD Stack	PSSD	<b>7,700</b>	92	<b>3,600</b>
		8/25/2009	BPS1-AR003-ST02	SSD Stack	PSSD	<b>10,000</b>	170	<b>4,200</b>
		11/16/2009	BPS1-AR003-ST03	SSD Stack	PSSD	<b>6,200</b>	64	<b>2,900</b>
		11/16/2009	BPS1-AR003-ST03 DUP	SSD Stack	PSSD	<b>5,400</b>	61	<b>2,200</b>
		3/2/2010	BPS1-AR003-ST04 *	SSD Stack	PSSD/PSVE	3.8	0.82	0.98
<b>4</b>	APU/SSD	8/24/2010	BPSI-AR003-ST05*	SSD Stack	PSSD/PSVE	4.3	2.4	2.4
		1/21/2009	BPS1-AR004-SSB	Subslab	IS	<b>1,400</b>	42	<b>2,100</b>
		6/25/2009	BPS1-AR004-ST01	SSD Stack	PSSD	160	2	190
		6/25/2009	BPS1-AR004-ST01 DUP	SSD Stack	PSSD	160	1.7	180
		8/25/2009	BPS1-AR004-ST02	SSD Stack	PSSD	<b>360</b>	31	210
		11/17/2009	BPS1-AR004-ST03	SSD Stack	PSSD	<b>300</b>	17	140
		3/2/2010	BPS1-AR004-ST04 *	SSD Stack	PSSD/PSVE	1.8	1.5	0.21 J
<b>13</b>	APU/SSD	8/24/10	BPSI-AR004-ST05*	SSD Stack	PSSD/PSVE	2.3 J	1.9 J	0.17 J
		2/26/2009	BPS1-AR013-SSB	Subslab	IS	230	11	420
		2/26/2009	BPS1-AR013-SSB DUP	Subslab	IS	<b>250</b>	12	440
		6/24/2009	BPS1-AR013-ST01	SSD Stack	PSSD	70	68	84
		8/25/2009	BPS1-AR013-ST02	SSD Stack	PSSD	48	8.6	58
		11/16/2009	BPS1-AR013-ST03	SSD Stack	PSSD	29	4.8	30
		3/2/2010	BPS1-AR013-ST04 *	SSD Stack	PSSD/PSVE	1.1	1.3	1.8
		8/24/2010	BPSI-AR013-ST05*	SSD Stack	PSSD/PSVE	0.87	2.20	0.31 J
<b>14</b>	APU/SSD	8/24/2010	BPSI-AR013-ST05 DUP*	SSD Stack	PSSD/PSVE	0.94	2.50	0.34 J
		3/11/2009	BPS1-AR014-SSB	Subslab	IS	<b>290</b>	15	970
		6/24/2009	BPS1-AR014-ST01	SSD Stack	PSSD	88	13	110
		8/26/2009	BPS1-AR014-ST02	SSD Stack	PSSD	30	10	43
		11/17/2009	BPS1-AR014-ST03	SSD Stack	PSSD	12	5.3	13
		3/1/2010	BPS1-AR014-ST04 *	SSD Stack	PSSD/PSVE	1	1.6	0.95
		8/24/2010	BPSI-AR014-ST05*	SSD Stack	PSSD/PSVE	0.55	2.90	0.34 J

NOTES:

**Bold values indicate exceedance of NYSDOH guideline values**

Highlighted rows show analytical results for this reporting period.

\* Sample collected after SVE Containment System began operation in January 2010

IS = Initial Sampling

PSSD = Post SSD Installation Sampling

PSVE = Post Soil Vapor Extraction Containment system start up

(1) APUs were removed from the home on 7/13/10.

TABLE 3-3  
Analytical Comparison of Detections  
Soil Vapor Pressure Monitors  
Site 1 - Former Drum Marshalling Area  
NWIRP Bethpage, New York

	SVPM 11		SVPM 12			SVPM 2002						SVPM 2003				SVPM 2004					SVPM 2007	
Depth - bgs	24 Feet		25 Feet			8 Feet		20 Feet		44 Feet		20 Feet		49 Feet		20 Feet		49 Feet		49 Feet		
Sample ID	SVPM11S-24	BPSI - SVPM-11S	SVPM12S-25	BPSI - SVPM-12S	BPSI - SVPM-12S DUP	BPSI - SG2002-08	BPSI - SVPM-2002S	BPSI - SG2002-20	BPSI - SVPM-2002I	BPSI - SG2002-44	BPSI - SVPM-2002D	BPSI - SG2003-20	BPSI - SVPM-2003I	BPSI - SG2003-49	BPSI - SVPM-2003D	BPSI - SG2004-20	BPSI - SVPM-2004I	BPSI - SVPM-2004I DUP	BPSI - SG2004-49	BPSI - SVPM-2004D	BPSI - SG2007-49	BPSI - SVPM-2007D
Date	January-08	August-10	January-08	August-10	August-10	October-08	August-10	October-08	August-10	October-08	August-10	October-08	August-10	October-08	August-10	October-08	August-10	August-10	October-08	August-10	October-08	August-10
VOCs (µg/m3)																						
Trichloroethene	7,200	3,100	73,000	1,200	1,200	34,000	17	89,000	8	26,000	10	82	0.36 J	710	5.2	550	0.28 J	0.26 J	600	0.47	400	1.5
Tetrachloroethene	5,300	330	ND	55	53	420	3	740	1.8	48 J	4	14	5	8.9	2.5	1,000	1.8	2.1	580	2.9	5.3 J	2.7
1,1,1-Trichloroethane	2,400	16	36,000	71	74	21,000	1.2	52,000	0.68	27,000	1	170J	0.23 J	720J	1.2	460	0.20 J	0.17 J	480	0.33 J	870	1.5
Vinyl Chloride	ND	ND	ND	ND	ND	ND	0.028 J	ND	ND	ND	0.022 J	ND	ND	ND	ND	ND	0.016 J	0.028 J	ND	0.042 J	ND	0.036 J
1,1-Dichloroethane	63	ND	710	1.2 J	1.3 J	170	0.017 J	680	0.014 J	490	0.027 J	0.49 J	ND	8.6	0.026 J	44	0.072 J	0.079 J	74	0.030 J	3.0 J	0.041 J
1,1-Dichloroethene	ND	ND	1,700	ND	ND	220	0.071 J	890	0.037 J	480	ND	2	ND	23	ND	7.1	0.043 J	ND	ND	ND	13	ND
cis-1,2-Dichloroethene	860	38	200J	140	150	49 J	ND	170	ND	130	0.022 J	ND	ND	1.6	ND	4.6	ND	ND	ND	ND	ND	0.95
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	0.076 J	ND	0.087 J	ND	0.054 J	ND	ND	ND	0.063 J	ND	0.065 J	0.056 J	ND	0.078 J	ND	0.11 J
trans-1,2-Dichloroethene	64	4.1 J	ND	2.2 J	2.5 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.9	0.015 J	ND	ND	ND	ND	0.054 J

bgs - Below Ground Surface  
µg/m<sup>3</sup> = micrograms per cubic meter  
J = estimated value  
ND = No Detect

**Table 3-4**  
**Analytical Summary**  
**Outdoor Air Sampling**  
**Site 1 - Former Drum Marshalling Area**  
**NWIRP Bethpage, New York**

Sample ID	BPS1-AR003-ODA-3	BPS1-AR002-ODA-4	BPS1-SVPM-ODA	BPS1-SVPM-ODA	Frequency of
Sample Collection Date	7/28/2010	8/24/2010	8/25/2010	8/26/2010	Detections
<b>Volatile Organics (ug/m<sup>3</sup>)</b>					
1,1,1-TRICHLOROETHANE	0.07 J	0.062 J	0.036 J	0.037 J	4 of 4
1,1-DICHLOROETHANE	ND	ND	ND	ND	0 of 4
1,1-DICHLOROETHENE	ND	ND	ND	ND	0 of 4
1,2-DICHLOROETHANE	0.27 J	0.076 J	0.082 J	0.10 J	4 of 4
CIS-1,2-DICHLOROETHENE	ND	ND	ND	0.026 J	1 of 4
TETRACHLOROETHENE	0.16 J	0.16 J	0.27 J	0.24 J	4 of 4
TRANS-1,2-DICHLOROETHENE	ND	ND	ND	ND	0 of 4
TRICHLOROETHENE	0.22 J	0.048 J	0.044 J	0.040 J	4 of 4
VINYL CHLORIDE	ND	ND	ND	ND	0 of 4

**Notes:**

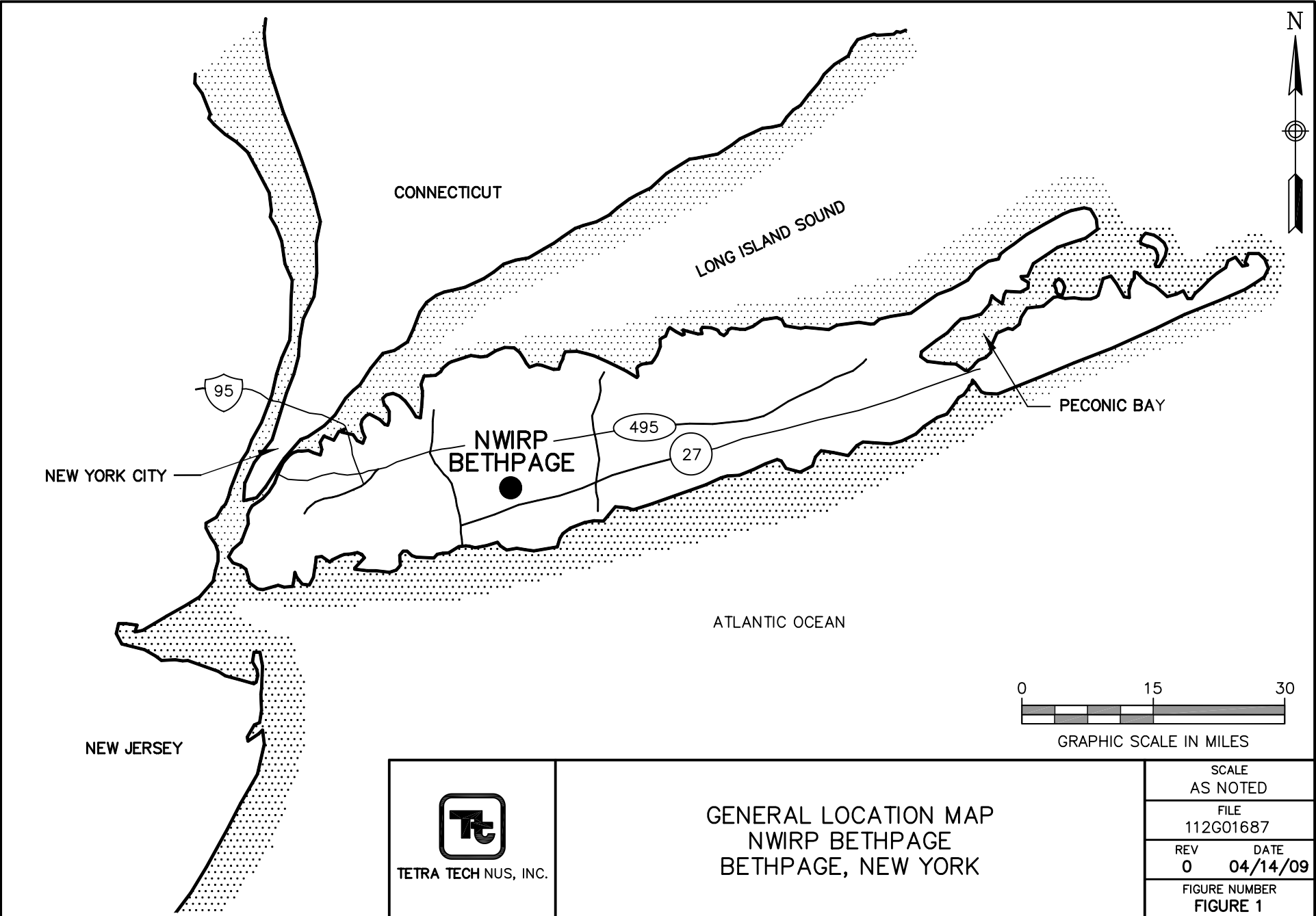
Sample collection date indicates the day of collection. Samples ran for 24 hours prior to collection.

µg/m<sup>3</sup> = micrograms per cubic meter

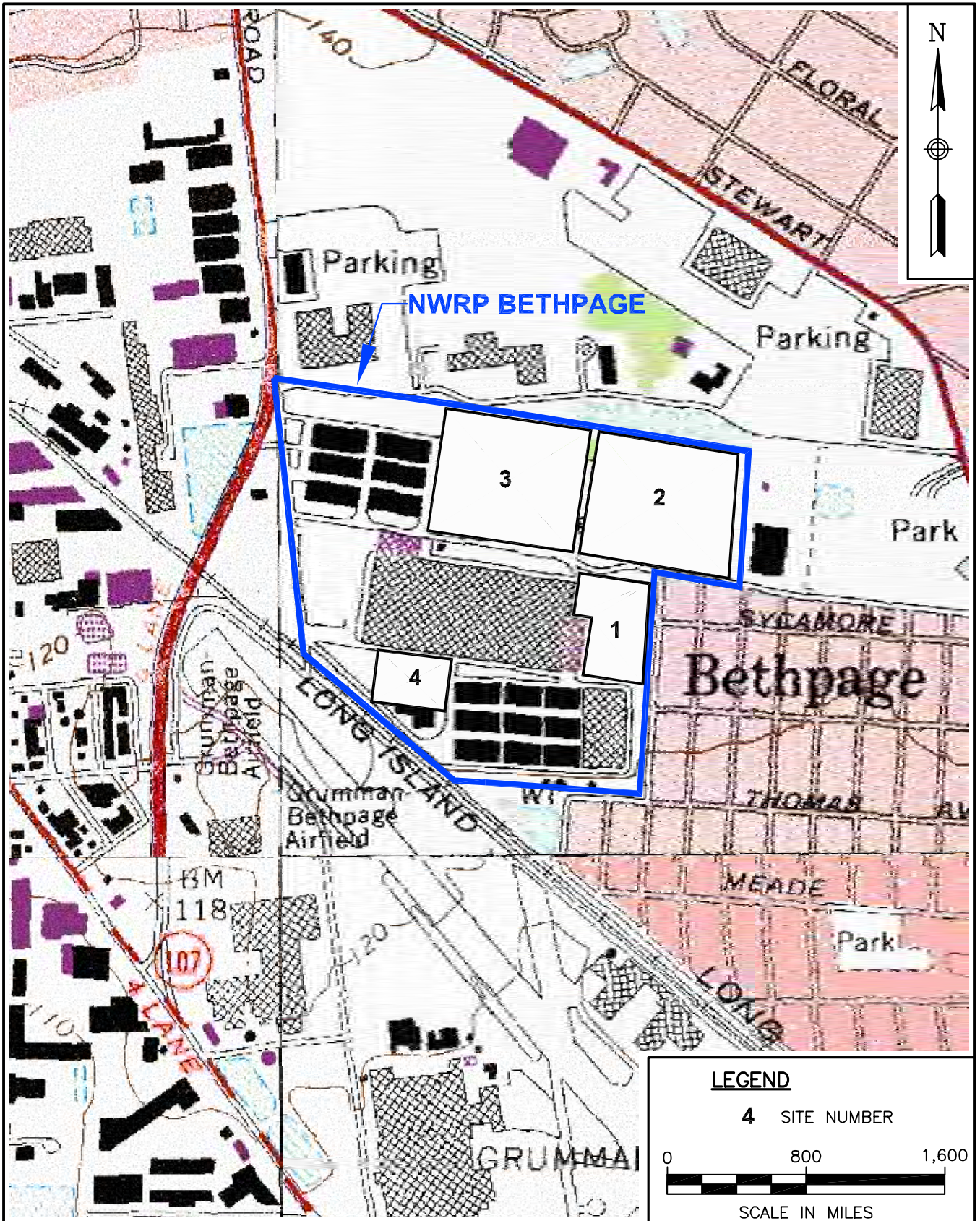
ND = Non-Detect Value

J = Estimated Value

## FIGURES



 TETRA TECH NUS, INC.	GENERAL LOCATION MAP NWIRP BETHPAGE BETHPAGE, NEW YORK		SCALE AS NOTED	
			FILE 112G01687	
			REV 0	DATE 04/14/09
			FIGURE NUMBER FIGURE 1	



TETRA TECHNUS, INC.

SITE LOCATION MAP  
SITE 1  
NWRP  
BETHPAGE, NEW YORK

SCALE  
AS NOTED

FILE  
112G01687CM02

REV DATE  
0 04/14/09

FIGURE NUMBER  
FIGURE 2



## **APPENDICES**

## **APPENDIX A**

### **SVPM Implant Retrofit Log Sheets**



# OVERBURDEN MONITORING WELL SHEET FLUSH - MOUNT

WELL NO.: SUPM-20025

Tetra Tech NUS, Inc.

Geoprobe Implant Retrofit for Soil Vapor Pressure Monitor

PROJECT <u>NUEP Bethpage</u>	LOCATION <u>Site 1</u>	DRILLER <u>SUPM previously</u>
PROJECT NO. <u>112602019</u>	BORING <u>8/23/10</u>	DRILLING <u>installed January</u>
DATE BEGUN <u>8/23/10</u>	DATE COMPLETED <u>8/23/10</u>	METHOD <u>2009, this document</u>
FIELD GEOLOGIST <u>R. Sok</u>		DEVELOPMENT <u>implant construction</u>
GROUND ELEVATION _____	DATUM _____	METHOD <u>Only</u>

ACAD:FORM\_MWFM.dwg 07/20/99 INL

FLUSH MOUNT  
SURFACE CASING  
WITH LOCK

ELEVATION TOP OF RISER: \_\_\_\_\_

TYPE OF SURFACE SEAL: around implant cement/  
bentonite plug 0.2' to top casing

TYPE OF PROTECTIVE CASING: Flush  
mount cover  
I.D. OF PROTECTIVE CASING: 4"

DIAMETER OF HOLE: 2.25"

TYPE OF RISER PIPE: PVC

RISER PIPE I.D.: 1"

TYPE OF BACKFILL/SEAL: around tubing #1 silica  
Quartz to 0.2' below TOC to air

ELEVATION/DEPTH TOP OF SEAL: around implant 2.00' TOC

TYPE OF SEAL: around poly tubing  
3/8" Bentonite Hole Plug

ELEVATION/DEPTH TOP OF SAND: inside casing 6.20' TOC

3/4" ID  
Poly tubing

ELEVATION/DEPTH TOP OF SCREEN: 7.32' TOC

TYPE OF SCREEN: PVC  
SLOT SIZE x LENGTH: 0.010 slot x 2'

TYPE OF SAND PACK: around implant  
#1 silica Quartz

DIAMETER OF HOLE IN BEDROCK: NA

8.72' below TOC  
6" stainless steel  
Geoprobe Implant  
9.32' below TOC

ELEVATION / DEPTH BOTTOM OF SCREEN: 9.32' TOC

ELEVATION / DEPTH BOTTOM OF SAND: 9.32' TOC

ELEVATION/DEPTH BOTTOM OF HOLE: 9.32' TOC

BACKFILL MATERIAL BELOW SAND: NA



# OVERBURDEN MONITORING WELL SHEET FLUSH - MOUNT

WELL NO.: SVPM-2002Z

Tetra Tech NUS, Inc.

Geoprobe Implant Retrofit for Soil Vapor Pressure Monitor

PROJECT <u>NIWIRP-Bethpage</u>	LOCATION <u>Site 1</u>	DRILLER <u>SVPM previously</u>
PROJECT NO. <u>112G02019</u>	BORING <u>NA</u>	DRILLING <u>Installed January</u>
DATE BEGUN <u>8/23/10</u>	DATE COMPLETED <u>8/23/10</u>	METHOD <u>2009. This document</u>
FIELD GEOLOGIST <u>R. Sok</u>		DEVELOPMENT <u>implant construction</u>
GROUND ELEVATION _____	DATUM _____	METHOD <u>only</u>

ACAD:FORM\_MWFM.dwg 07/29/99 INL

FLUSH MOUNT SURFACE CASING WITH LOCK

ELEVATION TOP OF RISER: \_\_\_\_\_

TYPE OF SURFACE SEAL: around implant: cement/Bentonite plug - 0.2' to top of casing

TYPE OF PROTECTIVE CASING: Flush mount cover

I.D. OF PROTECTIVE CASING: 6"

DIAMETER OF HOLE: 2.25"

TYPE OF RISER PIPE: PVC

RISER PIPE I.D.: 1"

TYPE OF BACKFILL/SEAL: around tubing: #1 silica Quartz to 0.2' from TOC to rock

ELEVATION/DEPTH TOP OF SEAL: 16.00' TOC

TYPE OF SEAL: around poly tubing: 3/8" Bentonite Hole Plug

ELEVATION/DEPTH TOP OF SAND: inside casing: 19.51' TOC

1/4" I.D. Poly tubing

ELEVATION/DEPTH TOP OF SCREEN: 20.71' TOC

TYPE OF SCREEN: PVC

SLOT SIZE x LENGTH: 0.010 slot x 2'

TYPE OF SAND PACK: around Implant: #1 silica Quartz

DIAMETER OF HOLE IN BEDROCK: NA

ELEVATION / DEPTH BOTTOM OF SCREEN: 22.71' TOC

ELEVATION / DEPTH BOTTOM OF SAND: 22.71' TOC

ELEVATION/DEPTH BOTTOM OF HOLE: 22.71' TOC

BACKFILL MATERIAL BELOW SAND: NA

22.41' below TOC  
6" stainless steel Geoprobe Implant

21.81' below TOC



# OVERBURDEN MONITORING WELL SHEET FLUSH - MOUNT

WELL NO.: SVPM-20020

Tetra Tech NUS, Inc. Geoprobe Implant Retrofit for Soil Vapor Pressure Monitor

PROJECT <u>NWZRP Boffpage</u>	LOCATION <u>side 1</u>	DRILLER <u>SVPM previously</u>
PROJECT NO. <u>112602019</u>	BORING <u>NA</u>	DRILLING <u>Installed January</u>
DATE BEGUN <u>8/23/10</u>	DATE COMPLETED <u>8/23/10</u>	METHOD <u>2009 This documents</u>
FIELD GEOLOGIST <u>R. Sok</u>		DEVELOPMENT <u>implant construction</u>
GROUND ELEVATION _____	DATUM _____	METHOD <u>only.</u>

ACAD: FORM\_MWFM.dwg 07/29/99 INL

	ELEVATION TOP OF RISER: _____
	TYPE OF SURFACE SEAL: <u>around implant: cement / Bentonite plug - 0.2' below TOC</u>
	TYPE OF PROTECTIVE CASING: <u>Flush mount cover</u>
	I.D. OF PROTECTIVE CASING: <u>6"</u>
	DIAMETER OF HOLE: <u>2.25"</u>
	TYPE OF RISER PIPE: <u>PVC</u>
	RISER PIPE I.D.: <u>1"</u>
	TYPE OF BACKFILL/SEAL: <u>around tubing: #1 silica Quartz to 0.2' below TOC</u>
	ELEVATION/DEPTH TOP OF SEAL: <u>36.0' TOC</u>
	TYPE OF SEAL: <u>around poly tubing: 3/8" Bentonite Hole Plug</u>
ELEVATION/DEPTH TOP OF SAND inside casing: <u>40.00' TOC</u>	
<u>1/4" I.D. poly tubing</u>	ELEVATION/DEPTH TOP OF SCREEN: <u>41.34' TOC</u>
	TYPE OF SCREEN: <u>PVC</u>
	SLOT SIZE x LENGTH: <u>0.010 slot x 2'</u>
<u>42.50' below TOC</u>	TYPE OF SAND PACK: <u>around Implant: #1 silica Quartz</u>
<u>6" stainless steel Geoprobe Implant</u>	DIAMETER OF HOLE IN BEDROCK: <u>NA</u>
<u>43.0' below TOC</u>	ELEVATION / DEPTH BOTTOM OF SCREEN: <u>43.34' TOC</u>
	ELEVATION / DEPTH BOTTOM OF SAND: <u>43.34' TOC</u>
	ELEVATION/DEPTH BOTTOM OF HOLE: <u>43.34' TOC</u>
	BACKFILL MATERIAL BELOW SAND: <u>NA</u>



# OVERBURDEN MONITORING WELL SHEET FLUSH - MOUNT

WELL NO.: SUPM-2003T

Tetra Tech NUS, Inc. Geoprobe Implant Retrofit for Soil Vapor Pressure Monitor

PROJECT <u>NWAP Berhage</u>	LOCATION <u>Site 1</u>	DRILLER <u>SUPM previously</u>
PROJECT NO. <u>112602019</u>	BORING <u>NA</u>	DRILLING <u>Installed January</u>
DATE BEGUN <u>8/23/10</u>	DATE COMPLETED <u>8/23/10</u>	METHOD <u>2009 This documents</u>
FIELD GEOLOGIST <u>P. Sok</u>		DEVELOPMENT <u>implant construction</u>
GROUND ELEVATION _____	DATUM _____	METHOD <u>only</u>

ACAD:FORM\_MWFM.dwg 07/29/99 INL

	ELEVATION TOP OF RISER: _____
	TYPE OF SURFACE SEAL: <u>around implant: Cement / Bentonite Plug - 0.2' below TOC to TOC</u>
	TYPE OF PROTECTIVE CASING: <u>Flush mount cover</u>
	I.D. OF PROTECTIVE CASING: <u>6"</u>
	DIAMETER OF HOLE: <u>2.25"</u>
	TYPE OF RISER PIPE: <u>PVC</u>
	RISER PIPE I.D.: <u>1"</u>
	TYPE OF BACKFILL/SEAL: <u>around tubing: #1 silica Quartz to 0.2' below TOC</u>
	ELEVATION/DEPTH TOP OF SEAL: <u>15.00' TOC</u>
	TYPE OF SEAL: <u>around poly tubing: 3/8\" Bentonite Hole Plug</u>
ELEVATION/DEPTH TOP OF SAND: <u>19.03' TOC</u>	
ELEVATION/DEPTH TOP OF SCREEN: <u>20.58' TOC</u>	
TYPE OF SCREEN: <u>PVC</u>	
SLOT SIZE x LENGTH: <u>0.010 slot x 2'</u>	
TYPE OF SAND PACK: <u>around implant: #1 silica Quartz</u>	
DIAMETER OF HOLE IN BEDROCK: <u>NA</u>	
ELEVATION / DEPTH BOTTOM OF SCREEN: <u>22.58' TOC</u>	
ELEVATION / DEPTH BOTTOM OF SAND: <u>22.58' TOC</u>	
ELEVATION/DEPTH BOTTOM OF HOLE: <u>22.58' TOC</u>	
BACKFILL MATERIAL BELOW SAND: <u>NA</u>	



# OVERBURDEN MONITORING WELL SHEET FLUSH - MOUNT

WELL NO.: 511PM-20030

Tetra Tech NUS, Inc.

Geoprobe Implant Retrofit for Soil Vapor Pressure Monitor

PROJECT NWIRP BPH page LOCATION Site 1  
PROJECT NO. 112602019 BORING NA  
DATE BEGUN 8/23/10 DATE COMPLETED 8/23/10  
FIELD GEOLOGIST R. Sork  
GROUND ELEVATION \_\_\_\_\_ DATUM \_\_\_\_\_  
DRILLER SUPM previously  
DRILLING installed January  
METHOD 2009. This document  
DEVELOPMENT implant construction  
METHOD only

ACAD: FORM\_MWFM.dwg 07/20/99 INL

FLUSH MOUNT  
SURFACE CASING  
WITH LOCK

ELEVATION TOP OF RISER: \_\_\_\_\_

TYPE OF SURFACE SEAL: around Implant Cement /  
Bentonite Plug - 0.2' below TOC to TOC

TYPE OF PROTECTIVE CASING: Flush mount  
Cover

I.D. OF PROTECTIVE CASING: 6"

DIAMETER OF HOLE: 2.25"

TYPE OF RISER PIPE: PVC

RISER PIPE I.D.: 1"

TYPE OF BACKFILL/SEAL around tubing: #1 silica  
Quartz to 0.2' below TOC to TOC RLF

ELEVATION/DEPTH TOP OF SEAL: 34.0' TOC

TYPE OF SEAL around poly tubing:  
3/8" Bentonite Hole plug

ELEVATION/DEPTH TOP OF SAND inside casing: 38.30' TOC

1/4" I.D.  
Poly tubing

ELEVATION/DEPTH TOP OF SCREEN: 40.99' TOC

TYPE OF SCREEN: PVC  
SLOT SIZE x LENGTH: 0.010 slot x 2'

41.49' below TOC

6" stainless steel  
Geoprobe Implant

TYPE OF SAND PACK around implant:  
#1 silica Quartz

41.99' below TOC

DIAMETER OF HOLE IN BEDROCK: NA

ELEVATION / DEPTH BOTTOM OF SCREEN: 42.99' TOC

ELEVATION / DEPTH BOTTOM OF SAND: 42.99' TOC

ELEVATION/DEPTH BOTTOM OF HOLE: 42.99' TOC

BACKFILL MATERIAL BELOW SAND: NA



# OVERBURDEN MONITORING WELL SHEET FLUSH - MOUNT

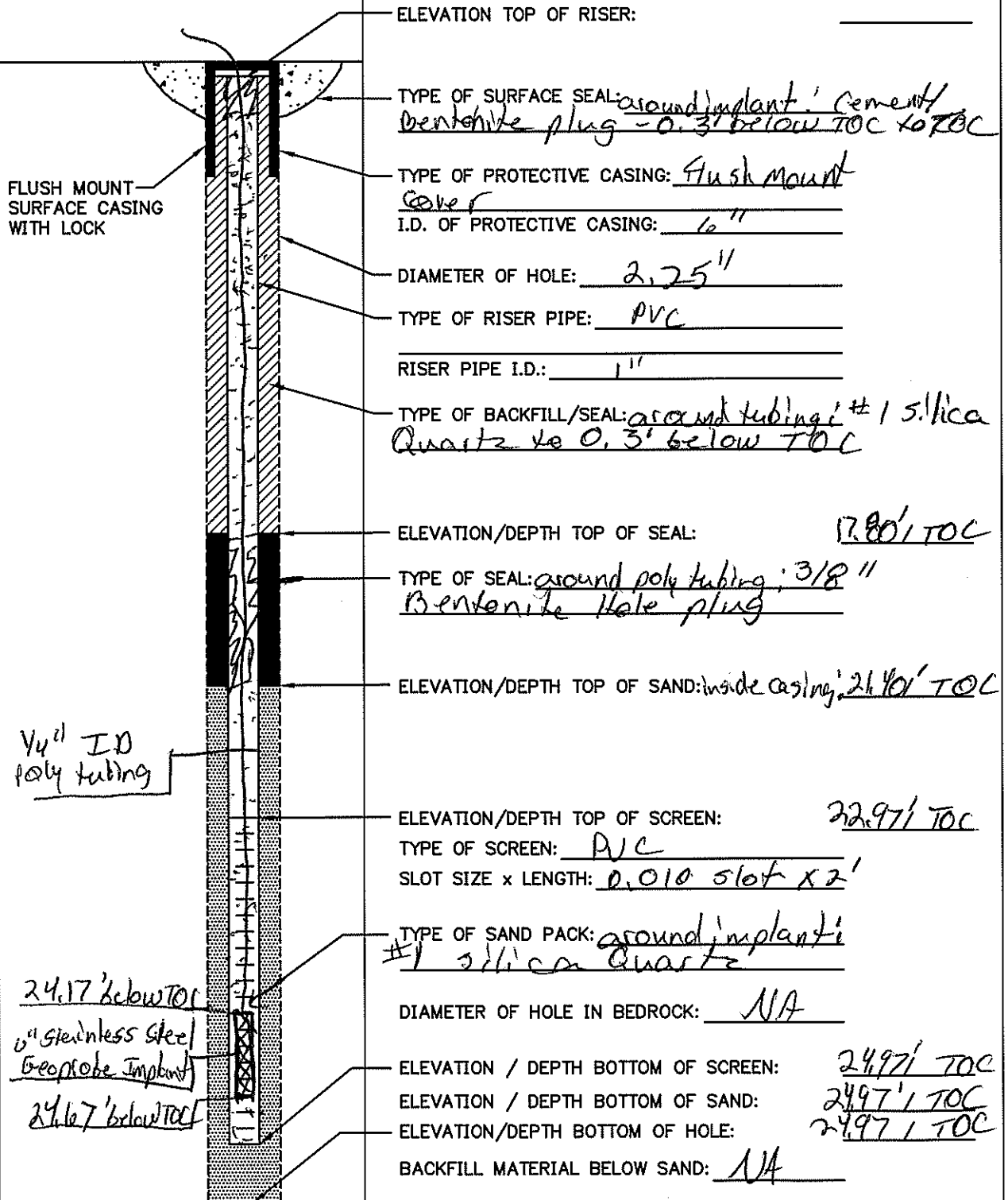
WELL NO.: 5UPM-2004I

Tetra Tech NUS, Inc.

Geoprobe Implant Retrofit for Soil Vapor Pressure Monitor

PROJECT <u>WWTP Bedpage</u>	LOCATION <u>Site 1</u>	DRILLER <u>5UPM previously</u>
PROJECT NO. <u>112 602019</u>	BORING <u>N/A</u>	DRILLING <u>installed - October</u>
DATE BEGUN <u>8/24/10</u>	DATE COMPLETED <u>8/24/10</u>	METHOD <u>2009 This documents</u>
FIELD GEOLOGIST <u>R. Sop</u>		DEVELOPMENT <u>implant construction</u>
GROUND ELEVATION _____	DATUM _____	METHOD <u>only</u>

ACAD:FORM\_WWFM.dwg 07/29/99 INL





# OVERBURDEN MONITORING WELL SHEET FLUSH - MOUNT

WELL NO.: SVPM-20040

Tetra Tech NUS, Inc.

*Geoprobe Implant Redesign for Soil Vapor Pressure Monitor*

PROJECT <u>NWIRP Bethpage</u>	LOCATION <u>side 1</u>	DRILLER <u>SVPM previously</u>
PROJECT NO. <u>112602019</u>	BORING <u>NA</u>	DRILLING installed - <u>October</u>
DATE BEGUN <u>8/24/10</u>	DATE COMPLETED <u>8/24/10</u>	METHOD <u>2009. This documents</u>
FIELD GEOLOGIST <u>R. Sok</u>		DEVELOPMENT implant construction
GROUND ELEVATION _____	DATUM _____	METHOD <u>only.</u>

ACAD: FORM\_MWFM.dwg 07/28/99 INL

FLUSH MOUNT  
SURFACE CASING  
WITH LOCK

ELEVATION TOP OF RISER: \_\_\_\_\_

TYPE OF SURFACE SEAL around implant, cement  
Bentonite plug 0.2 below TOC to TOC

TYPE OF PROTECTIVE CASING: Flush mount  
cover  
I.D. OF PROTECTIVE CASING: 6"

DIAMETER OF HOLE: 2.25"

TYPE OF RISER PIPE: PVC

RISER PIPE I.D.: 1"

TYPE OF BACKFILL/SEAL: around tubing, #1 silica  
Quartz to 0.2 below TOC

ELEVATION/DEPTH TOP OF SEAL: \_\_\_\_\_

31.02' TOC

TYPE OF SEAL: around tubing,  
3/8" Bentonite Hole plug

ELEVATION/DEPTH TOP OF SAND inside casing, 34.78' TOC

ELEVATION/DEPTH TOP OF SCREEN: \_\_\_\_\_

35.38' TOC

TYPE OF SCREEN: PVC  
SLOT SIZE x LENGTH: 0.010 slot x 2'

TYPE OF SAND PACK around implant,  
#1 silica Quartz

DIAMETER OF HOLE IN BEDROCK: NA

ELEVATION / DEPTH BOTTOM OF SCREEN: \_\_\_\_\_

37.38' TOC

ELEVATION / DEPTH BOTTOM OF SAND: \_\_\_\_\_

37.38' TOC

ELEVATION/DEPTH BOTTOM OF HOLE: \_\_\_\_\_

37.38' TOC

BACKFILL MATERIAL BELOW SAND: NA

36.78' below TOC

6" Stainless Steel  
Geoprobe Implant

37.38' below TOC

1/4" I.D.  
Poly Tubing



# OVERBURDEN MONITORING WELL SHEET FLUSH - MOUNT

WELL NO.: SUPM-2007I

Tetra Tech NUS, Inc.

Geoprobe Implant Retrofit for soil Vapor Pressure Monitor

PROJECT <u>NWTPA Belhage</u>	LOCATION <u>Site 1</u>	DRILLER <u>SUPM previously</u>
PROJECT NO. <u>112603019</u>	BORING <u>NA</u>	DRILLING <u>installed - January</u>
DATE BEGUN <u>8/24/10</u>	DATE COMPLETED <u>8/24/10</u>	METHOD <u>2009 this document</u>
FIELD GEOLOGIST <u>R. Sok</u>		DEVELOPMENT <u>implant construction</u>
GROUND ELEVATION _____	DATUM _____	METHOD <u>only</u>

ACAD: FORM\_MWFM.dwg 07/20/99 INL

FLUSH MOUNT  
SURFACE CASING  
WITH LOCK

ELEVATION TOP OF RISER: \_\_\_\_\_

TYPE OF SURFACE SEAL: around implant; cement  
Bentonite plug 0.2' below TOC to TOC

TYPE OF PROTECTIVE CASING: Flush mount  
Cover

I.D. OF PROTECTIVE CASING: 6"

DIAMETER OF HOLE: 2.25"

TYPE OF RISER PIPE: PVC

RISER PIPE I.D.: 1"

TYPE OF BACKFILL/SEAL: around tubing; #1 silica  
Quartz to 0.2' below TOC

ELEVATION/DEPTH TOP OF SEAL: 15.70' TOC

TYPE OF SEAL: around tubing;  
3/8" Bentonite Hole Plug

ELEVATION/DEPTH TOP OF SAND inside casing: 19.04' TOC

1/4" ID  
Poly tubing

ELEVATION/DEPTH TOP OF SCREEN: 20.41' TOC

TYPE OF SCREEN: PVC

SLOT SIZE x LENGTH: 0.010 slot x 2'

TYPE OF SAND PACK: around implant;  
#1 silica Quartz

DIAMETER OF HOLE IN BEDROCK: 1/4"

21.91' below TOC

ELEVATION / DEPTH BOTTOM OF SCREEN: 22.41' TOC

6" Stainless Steel  
Geoprobe Implant

ELEVATION / DEPTH BOTTOM OF SAND: 22.41' TOC

22.41' below TOC

ELEVATION/DEPTH BOTTOM OF HOLE: 22.41' TOC

BACKFILL MATERIAL BELOW SAND: NA



# OVERBURDEN MONITORING WELL SHEET FLUSH - MOUNT

WELL NO.: SUPM-2007D

Tetra Tech NUS, Inc.

Geoprobe Implant Retrofit for Soil Vapor Pressure Monitor

PROJECT <u>NWIRP Bethpage</u>	LOCATION <u>Site 1</u>	DRILLER <u>SUPM Previously</u>
PROJECT NO. <u>112602019</u>	BORING <u>N/A</u>	DRILLING <u>Installed January</u>
DATE BEGUN <u>8/24/10</u>	DATE COMPLETED <u>8/24/10</u>	METHOD <u>2009, This document</u>
FIELD GEOLOGIST <u>R. Sok</u>		DEVELOPMENT <u>Implant construction</u>
GROUND ELEVATION _____	DATUM _____	METHOD <u>only</u>

ACAD:FORM\_MWFM.dwg 07/28/99 INL

FLUSH MOUNT  
SURFACE CASING  
WITH LOCK

ELEVATION TOP OF RISER: \_\_\_\_\_

TYPE OF SURFACE SEAL around implant? Cement  
Bentonite plug 0.2 below TOC to TOC

TYPE OF PROTECTIVE CASING: Flush mount  
cover  
I.D. OF PROTECTIVE CASING: 6"

DIAMETER OF HOLE: 2.75"

TYPE OF RISER PIPE: PVC

RISER PIPE I.D.: 1"

TYPE OF BACKFILL/SEAL: around tubing, #1 Silica  
Quartz to 0.2 below TOC

ELEVATION/DEPTH TOP OF SEAL: 33.20' TOC

TYPE OF SEAL around tubing,  
3/8" bentonite NO Re Plug

ELEVATION/DEPTH TOP OF SAND inside casing, 37.40' TOC

ELEVATION/DEPTH TOP OF SCREEN: 38.0' TOC

TYPE OF SCREEN: PVC  
SLOT SIZE x LENGTH: 0.010 slot x 2'

TYPE OF SAND PACK around implant,  
#1 Silica Quartz

DIAMETER OF HOLE IN BEDROCK: N/A

ELEVATION / DEPTH BOTTOM OF SCREEN: 40.0' TOC

ELEVATION / DEPTH BOTTOM OF SAND: 40.0' TOC

ELEVATION/DEPTH BOTTOM OF HOLE: 40.0' TOC

BACKFILL MATERIAL BELOW SAND: N/A

1/4" ID.  
Poly tubing

39.50' below TOC  
4" Stainless Steel  
Geoprobe Implant  
40.0' below TOC

**APPENDIX B**  
**AIR SAMPLING LOG SHEETS**



## Tetra Tech NUS, Inc. AIR SAMPLING LOG SHEET

Page 1 of 1

Project Site Name:

NWIRP Bethpage

Sample ID No.:

BPS1 - ARO03 - SSB3

Project No.:

112G02019

Sample Location:

Home # 3

Sampled By:

RMS

## SAMPLING DATA:

Date:	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
7/28/10	(Visual)	(estimated)	(°F)	(in.)	(%)	
Time: 1609						
Method: 6L Summa	0-5 mph	SE-SW	~85°F			

Summa Canister #	33323
Filter Type/Flow	24 hr

Duplicate  
(if collected)


Start Time Vacuum	7/27 1604	in Hg - 30
End Time Vacuum	7/28 1609	in Hg - 5

	in Hg
	in Hg

He check	Start	Stop	Reading
—	—	—	—

Purge Data	Start	Stop	Notes:
—	—	—	

## Readings:

BKG - 1.8 ppm

## Liters/minute

60ml @ 3.8

120ml @ 3.7

180ml @ 4.3

## APU

E-Meter

HEPA Life

Carbon Life

## Reading

NA

Kwh

hours

hours

## SSD

E-Meter

Flow rate

## Reading

NA

Kwh

cfm

## Notes:

Subsite location placed adjacent to former locations SSB + SSB2.

\* APUs removed permanently from home on 7/13/10. SSD was shut off on 7/13/10. KLF



## Tetra Tech NUS, Inc. AIR SAMPLING LOG SHEET

Page 1 of 1

Project Site Name:

NWIRP Bethpage

Sample ID No.:

BPS1-AR003-INDR-5

Project No.:

112G02019

Sample Location:

Home # 3

Sampled By:

Rms

## SAMPLING DATA:

Date: 7/28/10	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Time: 1622	(Visual)	(estimated)	(°F)	(in.)	(%)	
Method: 6L Summa						

Summa Canister #	34348
Filter Type/Flow	24hr

Duplicate  
(if collected)


Start Time Vacuum	7/27 1608	in Hg -31
End Time Vacuum	7/28 1622	in Hg -7.5

	in Hg
	in Hg

He check	Start	Stop	Reading
—	—	—	—

Purge Data	Start	Stop	Notes:
—	—	—	

## Readings:

Liters/minute

— @ —  
— @ —  
— @ —

## APU

E-Meter  
HEPA Life  
Carbon Life

## Reading

NA

Kwh  
hours  
hours

## SSD

E-Meter  
Flow rate

## Reading

NA

Kwh  
cfm

## Notes:

Indoor air sample collected in middle of basement, near former basement air samples  
\* APUs removed permanently from home on 7/13/10. SSD was shut off on 7/13/10  
RIF

Tetra Tech NUS, Inc. **AIR SAMPLING LOG SHEET**

Page 1 of 1

Project Site Name:

NWIRP Bethpage

Sample ID No.:

BPS1-AR003-INDL-S

Project No.:

112G02019

Sample Location:

Home # 3

Sampled By:

RMS

**SAMPLING DATA:**

Date: 7/28/10	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Time: 1625	(Visual)	(estimated)	(°F)	(in.)	(%)	
Method: 6L Summa						

Summa Canister #	12086
Filter Type/Flow	24hr

Duplicate  
(if collected)

94602
24hr

(Used 1200  
for blind  
dup time)

Start Time Vacuum	7/27 1615	in Hg -30
End Time Vacuum	7/28 1625	in Hg -6.5

7/27 1615	in Hg -32
7/28 1626	in Hg -19.5

He check	Start	Stop	Reading
—	—	—	—

Purge Data	Start	Stop	Notes:
—	—	—	

**Readings:**

Liters/minute

— @ —  
— @ —  
— @ —

**APU**

E-Meter  
HEPA Life  
Carbon Life

**Reading**

NA

Kwh  
hours  
hours

**SSD**

E-Meter  
Flow rate

**Reading**

NA

Kwh  
cfm

**Notes:**

Sample collected in between living room and dining room (1st floor) were former INDL samples were collected  
\*APUs were removed permanently from home on 7/13/10, SSD was shut off on 7/13/10. KLF

Tetra Tech NUS, Inc. **AIR SAMPLING LOG SHEET**

Page 1 of 1

Project Site Name:

NWIRP Bethpage

Sample ID No.:

BPS1-AR003-00A3

Project No.:

112G02019

Sample Location:

Home #3

Sampled By:

RMS

**SAMPLING DATA:**

Date: 7/28/10	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Time: 1635	(Visual)	(estimated)	(°F)	(in.)	(%)	
Method: 6L Summa	0-Smph	SE-SW (Variable direction)	~85°F			

Summa Canister #	16791
Filter Type/Flow	24hr

Duplicate  
(if collected)


Start Time Vacuum	7/28 1628	in Hg -30
End Time Vacuum	7/28 1635	in Hg -10.5

	in Hg
	in Hg

He check	Start	Stop	Reading
—	—	—	—

Purge Data	Start	Stop	Notes:
—	—	—	

**Readings:**

Liters/minute

— @ —  
— @ —  
— @ —

**APU**

E-Meter  
HEPA Life  
Carbon Life

**Reading**

NA

Kwh  
hours  
hours

**SSD**

E-Meter  
Flow rate

**Reading**

NA

Kwh  
cfm

7/28/10 1638

738  
NA**Notes:**

Outdoor Air sample collected from SE corner of backyard

\* APUs removed permanently from home on 7/13/10. SSD was shut off on 7/13/10.  
KLF



## Tetra Tech NUS, Inc. SOIL GAS SAMPLING LOG SHEET

Page 1 of 1

Project Site Name: NWIRP Bethpage  
Project No.: 112G02019

Sample ID No.:  
Sample Location:  
Sampled By:

BPSI-AR003-ST05

Home # 3

Vince

## SAMPLING DATA:

Date:	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
8-24-10	(Visual)	(estimated)	(°F)	(in.)	(%)	
Time: 1454						
Method: Summa Canister	NA					

Summa Canister #	5739
Filter Type/Flow	30 minute

Duplicate  
(if collected)

NA

Start Time Vacuum	-30	in Hg	1412 hours
End Time Vacuum	-4.5	in Hg	1454 hours

	in Hg
↓	in Hg

He check	Start	Stop	Reading
NA			

Purge Data	Start	Stop	Notes:
NA			

## Readings:

Liters/minute

NA @  
@  
@

## Notes:

- Stack PID reading range 0.0 to 0.6 ppm prior to sampling
- Meter reading → 789 Kw



## Tetra Tech NUS, Inc. SOIL GAS SAMPLING LOG SHEET

Page 1 of 1

Project Site Name: NWIRP Bethpage  
Project No.: 112G02019

Sample ID No.:  
Sample Location:  
Sampled By:

BPS1-AR004-ST05  
Home # 4  
Vince Shickora / Rob Sak

## SAMPLING DATA:

Date:	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
8-24-10	(Visual)	(estimated)	(°F)	(in.)	(%)	
Time: 1500						
Method: Summa Canister	NA					

Summa Canister #	33989
Filter Type/Flow	30 minute

Duplicate  
(if collected)


Start Time Vacuum	-31	in Hg	1420 hours
End Time Vacuum	-5.0	in Hg	1500 hours

	in Hg
	in Hg

He check	Start	Stop	Reading
NA			

Purge Data	Start	Stop	Notes:
NA			

## Readings:

Liters/minute

NA @  
@  
@

## Notes:

Stack PID readings range 0.0 ppm to 0.3 ppm prior to sampling



## Tetra Tech NUS, Inc. SOIL GAS SAMPLING LOG SHEET

Page 1 of 1

Project Site Name:  
Project No.:NWIRP Bethpage  
112G02019Sample ID No.:  
Sample Location:  
Sampled By:BPS1-AR002-ST05  
Home # 2  
Vince Shickora / Ras Sok

## SAMPLING DATA:

Date: 8-24-10	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Time:	(Visual)	(estimated)	(°F)	(in.)	(%)	
Method: Summa Canister	NA					

Summa Canister #	1566
Filter Type/Flow	30 minutes

Duplicate  
(if collected)


Start Time Vacuum	- 31	in Hg
End Time Vacuum		in Hg

1403 hours

	in Hg
	in Hg

He check	Start	Stop	Reading
NA			

Purge Data	Start	Stop	Notes:
NA			

## Readings:

Liters/minute

NA @  
@  
@

## Notes:

- Stack PID reading range from 1.0 to 1.8 ppm prior to sampling
- Meter reading → 729 KW

Void → Bad regulator



## Tetra Tech NUS, Inc. SOIL GAS SAMPLING LOG SHEET

Page 1 of 1

Project Site Name:

NWIRP Bethpage

Sample ID No.:

BPS1-AR002-5T05

Project No.:

112G02019

Sample Location:

Home # 2

Sampled By:

Vince Shuckera / Rob Sok

## SAMPLING DATA:

Date: 8-24-10	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Time: 1544	(Visual)	(estimated)	(°F)	(in.)	(%)	
Method: Summa Canister	NA					

Summa Canister #	34260
Filter Type/Flow	30 minute

Duplicate  
(if collected)

NA

Start Time Vacuum	- 31	in Hg	1511 hours
End Time Vacuum	- 6.5	in Hg	1544 hours

He check	Start	Stop	Reading
NA			

Purge Data	Start	Stop	Notes:
NA			

## Readings:

Liters/minute

NA @  
@  
@

## Notes:

- Stack PID readings range from 0.0 to 1.8 ppm prior to sampling
- Meter reading → 729 KW



## Tetra Tech NUS, Inc. SOIL GAS SAMPLING LOG SHEET

Page 1 of 1

Project Site Name:

NWIRP Bethpage

Sample ID No.:

BPS1-AR013-ST05

Project No.:

112G02019

Sample Location:

Home # 13

Sampled By:

Vince Shickora / Rob Sok

## SAMPLING DATA:

Date: 8-24-10	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Time: 1641	(Visual)	(estimated)	(°F)	(in.)	(%)	
Method: Summa Canister	NA					

Summa Canister #	9920
Filter Type/Flow	30 minute

Duplicate  
(if collected)

9423
30 minute

Start Time Vacuum	-31	in Hg
End Time Vacuum	-25	in Hg

1556 hours  
1641

-31	in Hg
-4.5	in Hg

1556 hours  
1641

He check	Start	Stop	Reading
NA			

Purge Data	Start	Stop	Notes:
NA			

Readings:

Liters/minute

NA @  
@  
@

Notes:

Dup # → BPS1-DUP01-20100824

- Stack PID reading range from 0.0 to 0.6 ppm prior to sampling



## Tetra Tech NUS, Inc. SOIL GAS SAMPLING LOG SHEET

Page 1 of 1

Project Site Name:

NWIRP Bethpage

Sample ID No.:

BPS1-AR014-5T05

Project No.:

112G02019

Sample Location:

Home # 14

Sampled By:

RMG/VAS

## SAMPLING DATA:

Date: 8/24/10	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Time: 1647	(Visual)	(estimated)	(°F)	(in.)	(%)	
Method: Summa 6L canister						

Summa Canister #	12013
Filter Type/Flow	30 min

Duplicate  
(if collected)


Start Time Vacuum	-31	in Hg 1607
End Time Vacuum	-3	in Hg 1647

	in Hg
	in Hg

He check	Start	Stop	Reading

Purge Data	Start	Stop	Notes:

Readings:

Liters/minute

\_\_\_\_ @ \_\_\_\_  
\_\_\_\_ @ \_\_\_\_  
\_\_\_\_ @ \_\_\_\_

Notes:

PID Reading 0.6 ppm prior to start



## Tetra Tech NUS, Inc. SOIL GAS SAMPLING LOG SHEET

Page 1 of 1

Project Site Name:

NWIRP Bethpage

Sample ID No.:

BPS1-AR002-ODA4

Project No.:

112G02019

Sample Location:

Home # 2

Sampled By:

Vince Shuckora / Rob Sok

## SAMPLING DATA:

Date: 8-24-10	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Time: 1814	(Visual)	(estimated)	(°F)	(in.)	(%)	
Method: Summa Canister	~ 10 to 15 mph	N-NE	~ 78°F			

Summa Canister #	9910
Filter Type/Flow	8 hour

Duplicate  
(if collected)


Start Time Vacuum	-28.5	in Hg	1355 hours
End Time Vacuum	-11.0	in Hg	1814 hours

	in Hg
	in Hg

He check	Start	Stop	Reading
NA			

Purge Data	Start	Stop	Notes:
NA			

## Readings:

Liters/minute

NA @  
@  
@

## Notes:

Initial PID readings 0.0 ppm Ambient  
- Sampler located near NE corner of back yard



## Tetra Tech NUS, Inc. SOIL GAS SAMPLING LOG SHEET

Page 1 of 1

Project Site Name:

NWIRP Bethpage

Sample ID No.:

BPSI - SUPM - 2002.D - 082510

Project No.:

112G02019

Sample Location:

Home # NA

Sampled By:

Vince Stuckert / Rob Sok

## SAMPLING DATA:

Date:	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
8-25-10	(Visual)	(estimated)	(°F)	(in.)	(%)	
Time: 1458						
Method: Summa Canister	NA					

Summa Canister #	5761
Filter Type/Flow	30 minute

Duplicate  
(if collected)

NA

Start Time Vacuum	- 31	in Hg
End Time Vacuum	- 4.5	in Hg

1418 hours

1458

Initial Final

He check	Start	Stop	Reading	Reading
	1400	1415	75 ppm	75 ppm

Purge Data	Start	Stop	Notes: purge rate ~ 200 mL/min
	1400	1415	

④ Concentration of Helium in Test Chamber → 100,000 ppm or greater to ~ 53% Helium

## Readings:

Liters/minute

5 min @ 1200 mL/min

10 min @ 2000 mL

15 min @ 3000 mL

## Notes:

- Helium detector used → Dielectric (model MGD 2002)
- Pump used → SKC (model 224-PCXR8)
- Flow gauge → Bios-Dry Cal® - AC lite primary flow meter (1 mL to 5 mL range)



## Tetra Tech NUS, Inc. SOIL GAS SAMPLING LOG SHEET

Page 1 of 1

Project Site Name:  
Project No.:NWIRP Bethpage  
112G02019Sample ID No.:  
Sample Location:  
Sampled By:BPS1-SUPM-2003I-082610  
Home # NA  
RMS/UAS

## SAMPLING DATA:

Date:	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
8/26/10	(Visual)	(estimated)	(°F)	(in.)	(%)	
Time: 1501						
Method: Summa 6L	NA					

Summa Canister #	5625
Filter Type/Flow	30 min

Duplicate  
(if collected)


Start Time Vacuum	-31	in Hg
End Time Vacuum	-4.5	in Hg

1424 hours  
1501 hours

	in Hg
	in Hg

He check	Start	Stop	Reading
NA			

Purge Data	Start	Stop	Notes:
NA			

Readings:

Liters/minute

\_\_\_\_ @ \_\_\_\_  
\_\_\_\_ @ \_\_\_\_  
\_\_\_\_ @ \_\_\_\_

Notes:

--



## Tetra Tech NUS, Inc. SOIL GAS SAMPLING LOG SHEET

Page 1 of 1

Project Site Name:  
Project No.:NWIRP Bethpage  
112G02019Sample ID No.:  
Sample Location:  
Sampled By:

BPSI-SUPM-2002I-082510

Home # NA

Vince Shickora / Rob Sak

## SAMPLING DATA:

Date: 8-25-10	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Time: 1528	(Visual)	(estimated)	(°F)	(in.)	(%)	
Method: Summa Canister	NA					

Summa Canister #	34458
Filter Type/Flow	30 minute

Duplicate  
(if collected)

NA

Start Time Vacuum	-29.5	in Hg	1447 hours
End Time Vacuum	-4.5	in Hg	1528 hours

	in Hg
	in Hg

He check	Start	Stop	Reading	Reading
	1430	1445	0.0 ppm	0.0 ppm

Purge Data	Start	Stop	Notes: purge rate ~ 200 mL/min
	1430	1445	

\* concentration of Helium in  
Test Chamber → 100,000 ppm  
or greater to ~ 53% Helium

## Readings:

Liters/minute

5 min @ 1000 mL

10 min @ 2000 mL

15 min @ 2000 mL

## Notes:



## Tetra Tech NUS, Inc. SOIL GAS SAMPLING LOG SHEET

Page 1 of 1

Project Site Name:  
Project No.:NWIRP Bethpage  
112G02019Sample ID No.:  
Sample Location:  
Sampled By:BPSI-SVPM-20028-082510  
Home # NA  
Vince Shuckora / Rob Sok

## SAMPLING DATA:

Date: 8-25-10	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Time: 1625	(Visual)	(estimated)	(°F)	(in.)	(%)	
Method: Summa Canister	NA					

Summa Canister #	25303
Filter Type/Flow	30 minute

Duplicate  
(if collected)

NA

Start Time Vacuum	-31	in Hg
End Time Vacuum	-4.5	in Hg

1535 hours  
1625 hours

He check	Start	Stop	Reading	Reading
	1518	1533	125 ppm	150 ppm

Purge Data	Start	Stop	Notes: purge rate ~ 200 mL/min
	1518	1533	

\* Concentration in Helium Test chamber → 100,000 ppm or greater to ~ 53% Helium

## Readings:

Liters/minute

5 min @ 1000 ML

10 min @ 2000 ML

15 min @ 3000 ML

Notes:

--



## Tetra Tech NUS, Inc. SOIL GAS SAMPLING LOG SHEET

Page 1 of 1

Project Site Name:

NWIRP Bethpage

Sample ID No.:

BPSI-SVPM-2003D-082510

Project No.:

112G02019

Sample Location:

Home # NA

Sampled By:

Vince Shuckora / Rob Sok

## SAMPLING DATA:

Date:	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
8-25-10	(Visual)	(estimated)	(°F)	(in.)	(%)	
Time: 1800						
Method: Summa Canister	NA					

Summa Canister #	34349
Filter Type/Flow	30 minute

Duplicate  
(if collected)

NA

Start Time Vacuum	-30	in Hg	1726 hours
End Time Vacuum	-4.0	in Hg	1800

He check	Start	Stop	Reading	Reading
	1710	1725	50 ppm	0.0 ppm

Purge Data	Start	Stop	Notes: purge rate ~ 200 mL/min
	1710	1725	

\* Concentration of Helium in  
Test chamber → 100,000 ppm  
to 53%

## Readings:

Liters/minute

5 min @ 1000 ML

10 min @ 2000 ML

15 min @ 3000 ML

Notes:



## Tetra Tech NUS, Inc. SOIL GAS SAMPLING LOG SHEET

Page 1 of 1

Project Site Name: NWIRP Bethpage  
Project No.: 112G02019

Sample ID No.:  
Sample Location:  
Sampled By:

BPSI-SVPM-ODA-082510  
Home # NA  
Vince Shickora / Rob Sok

## SAMPLING DATA:

Date: 8-25-10	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Time: 1803	(Visual)	(estimated)	(°F)	(in.)	(%)	
Method: Summa canister	~ 5 mph	west	~ 75°F			

Summa Canister #	20944
Filter Type/Flow	8 hour

Duplicate  
(if collected)

NA

Start Time Vacuum	-31	in Hg	1333 hours
End Time Vacuum	-15	in Hg	1803

	in Hg
↓	in Hg

He check	Start	Stop	Reading
NA			→

Purge Data	Start	Stop	Notes:
NA		→	

## Readings:

Liters/minute

NA @  
@  
@

## Notes:

- Outdoor air sample applicable to the following locations: SVPM-2002I, SVPM 2002S, SVPM-2003D and SVPM-ODA-082510 (All samples collected on 8/25/10). KLF



## Tetra Tech NUS, Inc. SOIL GAS SAMPLING LOG SHEET

Page 1 of 1

Project Site Name:

NWIRP Bethpage

Sample ID No.:

BPSI-SVPM-2004I-082610

Project No.:

112G02019

Sample Location:

Home # NA

Sampled By:

Rob Sok / Vince Shickora

## SAMPLING DATA:

Date: 8-26-10	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Time: 0918	(Visual)	(estimated)	(°F)	(in.)	(%)	
Method: Summa Canister	NA					

Summa Canister #	12021
Filter Type/Flow	30 minute

Duplicate  
(if collected)

33800
30 minute

DUP #2

Start Time Vacuum	-28.0	in Hg
End Time Vacuum	-3.5	in Hg

0844 hours  
0918

-31.0	in Hg
-5.0	in Hg

0844 hours

1200 hour sample time  
for chain-of-custody

He check	Start	Stop	Reading	Reading
	0825	0842	75 ppm	0 ppm

Initial Final

Purge Data	Start	Stop	Notes: Flow rate ~ 200 mL/min
	0825	0842	

① Concentration of Helium in  
Test Chamber → 100,000 ppm  
To 53% Helium

## Readings:

Liters/minute

5 min @ 1000 mL

10 min @ 2000 mL

15 min @ 3000 mL

Notes:



## Tetra Tech NUS, Inc. SOIL GAS SAMPLING LOG SHEET

Page 1 of 1

Project Site Name:

NWIRP Bethpage

Sample ID No.:

BPSI-SVPM-20040-082610

Project No.:

112G02019

Sample Location:

Home # NA

Sampled By:

Rob Sok / Vince Shickora

## SAMPLING DATA:

Date: 8-26-10	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Time: 0920	(Visual)	(estimated)	(°F)	(in.)	(%)	
Method: Summa 6L	NA					→

Summa Canister #	33572
Filter Type/Flow	30 minute

Duplicate  
(if collected)

NA
↓

Start Time Vacuum	-30.0	in Hg
End Time Vacuum	-4.5	in Hg

0829 hours

0920

Initial Final

	in Hg
↓	in Hg

He check	Start	Stop	Reading	Reading
	0813		50 ppm	25 ppm

Purge Data	Start	Stop	Notes: Flow rate ~ 200 mL/min
	0813		

\* Concentration of Helium in  
Test Chamber → 100,000 ppm  
To 53% Helium

## Readings:

Liters/minute

5 Min @ 1000 ML

10 Min @ 2000 ML

15 Min @ 3000 ML

Notes:



## Tetra Tech NUS, Inc. SOIL GAS SAMPLING LOG SHEET

Page 1 of 1

Project Site Name:

NWIRP Bethpage

Sample ID No.:

BPSI-SVPM-2007A-082610

Project No.:

112G02019

Sample Location:

Home # NA

Sampled By:

Rob Sok / Vince Shickora

## SAMPLING DATA:

Date:	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
8-26-10	(Visual)	(estimated)	(°F)	(in.)	(%)	
Time: 1040						
Method: Summa canister	NA					

Summa Canister #	33915
Filter Type/Flow	30 minute

Duplicate  
(if collected)

NA

Start Time Vacuum	- 31.0	in Hg	1003 hours
End Time Vacuum	- 3.5	in Hg	1040 hours

He check	Initial		Final	
	Start	Stop	Reading	Reading
	0946	1001	0.0 ppm	0.0 ppm

Purge Data	Start	Stop	Notes: Flow rate ~ 200 mL/min
	0946	1001	

① Concentration of Helium in  
Test Chamber → 100,000 ppm  
to 50% Helium

## Readings:

Liters/minute

5 min @ 1000 ML

10 min @ 2000 ML

15 min @ 3000 ML

Notes:



## Tetra Tech NUS, Inc. SOIL GAS SAMPLING LOG SHEET

Page 1 of 1

Project Site Name:

NWIRP Bethpage

Sample ID No.:

BPSI-SVPM-12~~6~~-082610

Project No.:

112G02019

Sample Location:

Home # NA

Sampled By:

Vince Shickora / Rob Sok

## SAMPLING DATA:

Date: 8-26-10	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Time: 1238	(Visual)	(estimated)	(°F)	(in.)	(%)	
Method: Summa canister	NA					

Summa Canister #	12679
Filter Type/Flow	30 minute

Duplicate  
(if collected)

14006
30 minute

page 03\*

Start Time Vacuum	-31.0	in Hg	1159 hours
End Time Vacuum	-3.5	in Hg	1238 hours

-30.0	in Hg	1159 hours
-5.0	in Hg	1238 hours

He check	Start	Stop	Reading
NA			

Purge Data	Start	Stop	Notes: Flow rate ~ 200 ml/min
	1143	1158	

④ 1600 hours recorded  
on chain of custody

## Readings:

Liters/minute

5 min @ 1000 ML

10 min @ 2000 ML

15 min @ 3000 ML

Notes:



## Tetra Tech NUS, Inc. SOIL GAS SAMPLING LOG SHEET

Page 1 of 1

Project Site Name:

NWIRP Bethpage

Sample ID No.:

BPSI-SUPM-116-082616

Project No.:

112G02019

Sample Location:

Home # NA

Sampled By:

Vince Shuckora / Rob Sok

## SAMPLING DATA:

Date: 8-26-10	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Time: 1257	(Visual)	(estimated)	(°F)	(in.)	(%)	
Method: Summa canister	NA					

Summa Canister #	33886
Filter Type/Flow	30 minute

Duplicate  
(if collected)

NA

Start Time Vacuum	-31.0	in Hg	1219 hours
End Time Vacuum	-5.0	in Hg	1257 hours

He check	Start	Stop	Reading
NA			

Purge Data	Start	Stop	Notes: Flow rate ~ 200 mL/min
	1203	1218	

## Readings:

Liters/minute

5 min @ 1000 mL

10 min @ 2000 mL

15 min @ 3000 mL

Notes:



## Tetra Tech NUS, Inc. SOIL GAS SAMPLING LOG SHEET

Page 1 of 1

Project Site Name:

NWIRP Bethpage

Sample ID No.:

BPSI-SVPM-0-0A-082610

Project No.:

112G02019

Sample Location:

Home # NA

Sampled By:

Vince Shickora / Rob Sok

## SAMPLING DATA:

Date: 8-26-10	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Time: 1510	(Visual)	(estimated)	(°F)	(in.)	(%)	
Method: Summa canister	~ 5 mph	west	~ 75°F			

Summa Canister #	5727
Filter Type/Flow	8 hour

Duplicate  
(if collected)

NA
↓

Start Time Vacuum	-29.0	in Hg	0818
End Time Vacuum	-10.5	in Hg	1510

↓	in Hg
↓	in Hg

He check	Start	Stop	Reading
NA			→

Purge Data	Start	Stop	Notes:
NA		→	

## Readings:

Liters/minute

NA @  
@  
@

## Notes:

Outdoor air sample applicable to all samples collected on 8-26-10



## Tetra Tech NUS, Inc. SOIL GAS SAMPLING LOG SHEET

Page 1 of 1

Project Site Name:

NWIRP Bethpage

Sample ID No.:

BPSI-SVPM-2007I-082610

Project No.:

112G02019

Sample Location:

Home # NA

Sampled By:

Rob Sok / Vince Shickora

## SAMPLING DATA:

Date: 8-26-10	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Time:	(Visual)	(estimated)	(°F)	(in.)	(%)	
Method: Summa Canister	NA					

Summa Canister #	5602
Filter Type/Flow	30 minute

Duplicate  
(if collected)

NA

Start Time Vacuum		in Hg
End Time Vacuum		in Hg

	in Hg
	in Hg

He check	Start	Stop	Initial	Final
			Reading	Reading
	0942		2650 ppm	
Purge Data	Start	Stop	Notes: Flow rate ~ 200 ML/min	
	0942			

\* Concentration of Helium in  
Test chamber → 100,000 ppm  
To 53% Helium

## Readings:

Liters/minute

5 min @ 1000 ML

10 min @ 2000 ML

15 min @ 3000 ML

## Notes:

No sample - cannot purge line (air will not pull from tubing.) Well needs repair. KUC

**APPENDIX C**  
**CHAIN OF CUSTODY RECORDS**



## CHAIN-OF-CUSTODY RECORD

# Sample Transportation Notice

Reinquinishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Reinquinishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

**180 BLUE RAVINE ROAD, SUITE B  
FOLSOM, CA 95630-4719  
(916) 985-1000 FAX (916) 985-1020**

Page 1 of 1

Project Manager Dave Brayack  
Collected by: (Print and Sign) Robert Sok  
Company Tetra Tech NUS Email rob.sok@tetratech.com  
Address 5700 Lake Wright Dr City Norfolk State VA Zip 23502  
Phone (757) 618-2104 (cell) Fax \_\_\_\_\_

<b>Project Info:</b>  P.O. # _____  Project # <u>112602019</u>  Project Name <u>NWIRP Beth page</u>		<b>Turn Around Time:</b> <input type="checkbox"/> Normal <input checked="" type="checkbox"/> Rush <u>7 day TAT</u> specify		Lab Use Only Pressurized by: _____ Date: _____ Pressurization Gas: <u>N<sub>2</sub></u> He
---	--	---	--	---

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum		
						Initial	Final	Receipt Final (psi)
O1A	BPS1-AR003-SSB3	33323	7/28/10	1609	T0-15	-30	-5	
O2A	BPS1-AR003-INDB-S	34348	7/28/10	1622	T0-15	-31	-7.5	
O3A	BPS1-AR003-INDL-S	12086	7/28/10	1625	T0-15	-30	-6.5	
O4A	BPS1-AR003-OOA3	10791	7/28/10	1635	T0-15	-30	-10.5	
O5A	BPS1-DUP Ø1	94602	7/28/10	1200	T0-15	-32	-19.5	
			* Please note vacuum readings on duplicate and check can for enough volume					
			★ Quick 7-day TAT					

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time	Notes: Please call Bob Sok regarding Duplicate sample and volume. (757) 466-4904
	7/29 1000	Monica Ely	7/30/10 915	
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time	
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time	

Lab Use Only	Shipper Name		Air Bill #	Temp (°C)	Condition	Custody Seals Intact?		Work Order #
						Yes	No	
	Fed Ex			NA	Good			1007700



# CHAIN-OF-CUSTODY RECORD

## Sample Transportation Notice

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FOLSOM, CA 95630-4719  
(916) 985-1000 FAX (916) 985-1020

Page 1 of 3

Project Manager Dave Brayack  
Collected by: (Print and Sign) Robert Sok  
Company Tetra Tech Email robert.sok@tetra-tech.com  
Address 5200 Lake Wright Dr City Norfolk State VA Zip 23502  
Phone 757-466-4904 Fax \_\_\_\_\_

Project Info:	
P.O. #	Project # <u>112602019</u>
Project Name <u>CTO-WE06</u>	
Turn Around Time: <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Rush	
Lab Use Only Pressurized by: _____ Date: _____ Pressurization Gas: _____ N <sub>2</sub> He	

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum		
						Initial	Final	Final (psi)
01A	BPS1-ARE03-ST05	5739	8/24/10	1454	TO-15 (short list)	-30	-4.5	
02A	BPS1-ARE04-ST05	33989	8/24/10	1500		-31	-5	
03A	BPS1-ARE02-ST05	34260	8/24/10	1544		-31	-6.5	
04A	BPS1-ARE03-ST05	9920	8/24/10	1641		-31	-7.5	
05A	BPS1-ARE04-ST05	12013	8/24/10	1647		-31	-3	
06A	BPS1-ARE02-G0A4	9910	8/24/10	1814		-28.5	-11	
07A	BPS1-DUP01-20100824	9423	8/24/10	2400		-31	-9.5	
08A	BPS1-SUPM-20020-082510	5761	8/25/10	1458		-31	-4.5	
09A	BPS1-SUPM-20021-082510	34458	8/25/10	1447	1528	-29.5	-4.5	
10A	BPS1-SUPM-20025-082510	25303	8/25/10	1625		-31	-4.5	

Relinquished by: (signature) <u>[Signature]</u> Date/Time <u>8/24/10 1800</u>	Received by: (signature) <u>Monica Nguyen</u> Date/Time <u>8/27/10 915</u>
Relinquished by: (signature) _____ Date/Time _____	Received by: (signature) _____ Date/Time _____
Relinquished by: (signature) _____ Date/Time _____	Received by: (signature) _____ Date/Time _____

Notes: Please use site specific compound list and detection limits

Relinquished by: (signature) _____ Date/Time _____	Received by: (signature) _____ Date/Time _____
Lab Use Only	Shipper Name <u>FedEx</u>
	Air Bill # _____
	Temp (°C) <u>NA</u> Condition <u>Good</u>
	Custody Seals Intact? <u>Yes</u> No None
	Work Order # <u>008666</u>



# CHAIN-OF-CUSTODY RECORD

## Sample Transportation Notice

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FOLSOM, CA 95630-4719  
(916) 985-1000 FAX (916) 985-1020

Page 2 of 3

Project Manager Dave Bayack  
Collected by: (Print and Sign) Robert Sok  
Company SAI Email \_\_\_\_\_  
Address \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
Phone \_\_\_\_\_ City \_\_\_\_\_ Fax \_\_\_\_\_

Project Info:  
P.O. # \_\_\_\_\_  
Project # 112602019  
Project Name CTD-WF06  
Turn Around Time: ☒ Normal ☐ Rush  
Pressurized by: \_\_\_\_\_ Date: \_\_\_\_\_  
Pressurization Gas: \_\_\_\_\_ N<sub>2</sub> He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum		
						Initial	Final	Final (psf)
11A	BPS1-SUPM-2003D-082510	34349	8/25/10	1800	70-15	-30	-4	
12A	BPS1-SUPM-00A-082510	20944	8/25/10	1803		-31	-15	
13A	BPS1-SUPM-2004I-082610	12021	8/26/10	0918		-28	-3.5	
14A	BPS1-SUPM-2004D-082610	33572	8/26/10	0920		-30	-4.5	
15A	BPS1-SUPM-DUP02-082610	33800	8/26/10	1200		-31	-5	
16A	BPS1-SUPM-2007D-082610	33915	8/26/10	1040		-31	-3.5	
17A	BPS1-SUPM-12F-082610	12679	8/26/10	1238		-31	-3.5	
18A	BPS1-SUPM-11F-082610	33886	8/26/10	1257		-31	-5	
19A	BPS1-SUPM-2003I-082610	5625	8/26/10	1501		-31	-4.5	
20A	BPS1-DUP03-082610	14006	8/26/10	1600		-30	-5	

Relinquished by: (signature) [Signature] Date/Time 8/26/10 1800  
Relinquished by: (signature) [Signature] Date/Time 8/26/10 1800  
Relinquished by: (signature) \_\_\_\_\_ Date/Time \_\_\_\_\_  
Relinquished by: (signature) \_\_\_\_\_ Date/Time \_\_\_\_\_

Notes: Please use site specific compound list and detection limits

Shipper Name Fed Ex Air Bill # \_\_\_\_\_ Temp (°C) NA Condition Good Custody Seals Intact? ☒ Yes ☐ No ☐ None  
Lab Use Only Fed Ex Work Order # 1008666



## CHAIN-OF-CUSTODY RECORD

Project Manager Dave Baryack  
 Collected by: (Print and Sign) Robert Sek  
 Company SAI Email \_\_\_\_\_  
 Address SAI City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
 Phone SAI Fax \_\_\_\_\_

## Sample Transportation Notice

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FOLSOM, CA 95630-4719  
(916) 985-1000 FAX (916) 985-1020**

Page 3 of 3

Project Manager <u>Dave Bynack</u>		Collected by: (Print and Sign) <u>Robert Sok</u>		Company <u>SAMF</u>		Project Info:		Lab Use Only	
Address _____		City _____		State _____		P.O. # _____		Pressurized by: _____	
Phone _____		Fax _____		Email _____		Project # <u>112602019</u>		Date: _____	
Zip _____		Air Bill # _____		Temp (°C) <u>NA</u>		Project Name <u>CTO-WF06</u>		Pressurization Gas: _____	
Shipper Name <u>Fed Ex</u>		Condition <u>Good</u>		Custody Seals Intact? <u>Yes</u> No		Work Order # <u>1008666</u>		N <sub>2</sub> He	
Relinquished by: (signature) _____		Relinquished by: (signature) _____		Relinquished by: (signature) _____		Turn Around Time: <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Rush		Canister Pressure/Vacuum	
Date/Time <u>8/26/10</u>		Date/Time <u>8/26/10</u>		Date/Time <u>8/27/10</u>		Analyses Requested <u>TD-15</u>		Initial Final	
Field Sample I.D. (Location) <u>BP51-SUPM-00A-082610</u>		Can # <u>5727</u>		Date of Collection <u>8/26/10</u>		Time of Collection <u>1510</u>		Final (psi) <u>-10.5</u>	
Relinquished by: (signature) _____		Relinquished by: (signature) _____		Relinquished by: (signature) _____		Relinquished by: (signature) _____		Relinquished by: (signature) _____	
Date/Time <u>8/26/10</u>		Date/Time <u>8/26/10</u>		Date/Time <u>8/27/10</u>		Date/Time <u>915</u>		Date/Time _____	
Received by: (signature) _____		Received by: (signature) _____		Received by: (signature) _____		Received by: (signature) _____		Received by: (signature) _____	
Date/Time <u>8/26/10</u>		Date/Time <u>8/26/10</u>		Date/Time <u>8/27/10</u>		Date/Time <u>915</u>		Date/Time _____	
Relinquished by: (signature) _____		Relinquished by: (signature) _____		Relinquished by: (signature) _____		Relinquished by: (signature) _____		Relinquished by: (signature) _____	
Date/Time <u>8/26/10</u>		Date/Time <u>8/26/10</u>		Date/Time <u>8/27/10</u>		Date/Time <u>915</u>		Date/Time _____	
Received by: (signature) _____		Received by: (signature) _____		Received by: (signature) _____		Received by: (signature) _____		Received by: (signature) _____	
Date/Time <u>8/26/10</u>		Date/Time <u>8/26/10</u>		Date/Time <u>8/27/10</u>		Date/Time <u>915</u>		Date/Time _____	
Relinquished by: (signature) _____		Relinquished by: (signature) _____		Relinquished by: (signature) _____		Relinquished by: (signature) _____		Relinquished by: (signature) _____	
Date/Time <u>8/26/10</u>		Date/Time <u>8/26/10</u>		Date/Time <u>8/27/10</u>		Date/Time <u>915</u>		Date/Time _____	
Received by: (signature) _____		Received by: (signature) _____		Received by: (signature) _____		Received by: (signature) _____		Received by: (signature) _____	
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Date/Time <u>8/26/10</u>		Date/Time <u>8/26/10</u>		Date/Time <u>8/27/10</u> </					

**APPENDIX D**  
**DATA ANALYTICAL REPORTS**

8/23/2010

Mr. David Brayack

Tetra Tech

Twin Oaks I, Suite 309

5700 Lake Wright Drive

Norfolk VA 23502

Project Name: NWIRP Bethpage

Project #: 112G02019

Workorder #: 1007700B

Dear Mr. David Brayack

The following report includes the data for the above referenced project for sample(s) received on 7/30/2010 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott

Project Manager

**WORK ORDER #: 1007700B**

Work Order Summary

**CLIENT:** Mr. David Brayack  
Tetra Tech  
Twin Oaks I, Suite 309  
5700 Lake Wright Drive  
Norfolk, VA 23502

**BILL TO:** Accounts Payable/Pittsburg  
Tetra Tech EC, Inc.  
Foster Plaza 7  
661 Anderson Drive  
Pittsburgh, PA 15220-2745

**PHONE:** (757) 461-3824

**P.O. #**

**FAX:** (757) 461-4148

**PROJECT #** 112G02019 NWIRP Bethpage

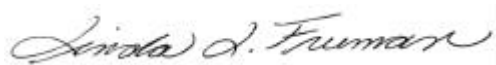
**DATE RECEIVED:** 07/30/2010

**CONTACT:** Ausha Scott

**DATE COMPLETED:** 08/20/2010

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	BPS1-AR003-SSB3	Modified TO-15	5.0 "Hg	5 psi
02A	BPS1-AR003-INDB-5	Modified TO-15	0.6 "Hg	5 psi
03A	BPS1-AR003-INDL-5	Modified TO-15	5.0 "Hg	5 psi
04A	BPS1-AR003-ODA3	Modified TO-15	11.0 "Hg	5 psi
05A	BPS1-DUP01	Modified TO-15	17.2 "Hg	5 psi
06A	Lab Blank	Modified TO-15	NA	NA
07A	CCV	Modified TO-15	NA	NA
08A	LCS	Modified TO-15	NA	NA

CERTIFIED BY:



Laboratory Director

DATE: 08/23/10

Certification numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763,  
NY NELAP - 11291, UT NELAP - 9166389892, AZ Licensure AZ0719

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,  
Accreditation number: E87680, Effective date: 07/01/09, Expiration date: 06/30/10

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE**  
**Modified TO-15**  
**Tetra Tech**  
**Workorder# 1007700B**

Five 6 Liter Summa Canister (100% Certified) samples were received on July 30, 2010. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
ICAL %RSD acceptance criteria	+/- 30% RSD with 2 compounds allowed out to < 40% RSD	30% RSD with 4 compounds allowed out to < 40% RSD
Daily Calibration	+/- 30% Difference	<= 30% Difference with four allowed out up to <=40%.; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases
Sample collection media	Summa canister	ATL recommends use of summa canisters to insure data defensibility, but will report results from Tedlar bags at client request

**Receiving Notes**

The Chain of Custody (COC) was not relinquished properly. A year was not provided by the field sampler.

**Analytical Notes**

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

**Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
- J - Estimated value.
- E - Exceeds instrument calibration range.

- S - Saturated peak.
- Q - Exceeds quality control limits.
- U - Compound analyzed for but not detected above the reporting limit.
- UJ- Non-detected compound associated with low bias in the CCV
- N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

- a-File was requantified
- b-File was quantified by a second column and detector
- r1-File was requantified for the purpose of reissue

## Summary of Detected Compounds

### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

**Client Sample ID: BPS1-AR003-SSB3**

**Lab ID#: 1007700B-01A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.080	0.43	0.44	2.3
Trichloroethene	0.080	2.7	0.43	14
Tetrachloroethene	0.080	0.14	0.55	0.96
cis-1,2-Dichloroethene	0.16	0.0061 J	0.64	0.024 J
1,2-Dichloroethane	0.16	0.34	0.65	1.4

**Client Sample ID: BPS1-AR003-INDB-5**

**Lab ID#: 1007700B-02A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.068	0.34	0.37	1.9
Trichloroethene	0.068	0.050 J	0.37	0.27 J
Tetrachloroethene	0.068	0.040 J	0.46	0.28 J
1,2-Dichloroethane	0.14	0.70	0.55	2.8

**Client Sample ID: BPS1-AR003-INDL-5**

**Lab ID#: 1007700B-03A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.080	0.60	0.44	3.3
Trichloroethene	0.080	0.030 J	0.43	0.16 J
Tetrachloroethene	0.080	0.042 J	0.55	0.28 J
1,2-Dichloroethane	0.16	0.41	0.65	1.6

**Client Sample ID: BPS1-AR003-ODA3**

**Lab ID#: 1007700B-04A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.11	0.013 J	0.58	0.070 J
Trichloroethene	0.11	0.040 J	0.57	0.22 J
Tetrachloroethene	0.11	0.023 J	0.72	0.16 J

## Summary of Detected Compounds

### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

**Client Sample ID: BPS1-AR003-ODA3**

**Lab ID#: 1007700B-04A**

1,2-Dichloroethane	0.21	0.068 J	0.86	0.27 J
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**Client Sample ID: BPS1-DUP01**

**Lab ID#: 1007700B-05A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.16	0.53	0.86	2.9
Trichloroethene	0.16	0.028 J	0.84	0.15 J
Tetrachloroethene	0.16	0.041 J	1.1	0.28 J
1,2-Dichloroethane	0.31	0.37	1.3	1.5

Client Sample ID: BPS1-AR003-SSB3

Lab ID#: 1007700B-01A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c081919	Date of Collection: 7/28/10 4:09:00 PM
Dil. Factor:	1.61	Date of Analysis: 8/20/10 09:16 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.080	0.43	0.44	2.3
Trichloroethene	0.080	2.7	0.43	14
Tetrachloroethene	0.080	0.14	0.55	0.96
Vinyl Chloride	0.16	Not Detected	0.41	Not Detected
1,1-Dichloroethene	0.16	Not Detected	0.64	Not Detected
1,1-Dichloroethane	0.16	Not Detected	0.65	Not Detected
cis-1,2-Dichloroethene	0.16	0.0061 J	0.64	0.024 J
1,2-Dichloroethane	0.16	0.34	0.65	1.4
trans-1,2-Dichloroethene	0.16	Not Detected	0.64	Not Detected

J = Estimated value.

**Container Type: 6 Liter Summa Canister (100% Certified)**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	107	70-130
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	110	70-130

Client Sample ID: BPS1-AR003-INDB-5

Lab ID#: 1007700B-02A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c081920	Date of Collection: 7/28/10 4:22:00 PM
Dil. Factor:	1.37	Date of Analysis: 8/20/10 09:56 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.068	0.34	0.37	1.9
Trichloroethene	0.068	0.050 J	0.37	0.27 J
Tetrachloroethene	0.068	0.040 J	0.46	0.28 J
Vinyl Chloride	0.14	Not Detected	0.35	Not Detected
1,1-Dichloroethene	0.14	Not Detected	0.54	Not Detected
1,1-Dichloroethane	0.14	Not Detected	0.55	Not Detected
cis-1,2-Dichloroethene	0.14	Not Detected	0.54	Not Detected
1,2-Dichloroethane	0.14	0.70	0.55	2.8
trans-1,2-Dichloroethene	0.14	Not Detected	0.54	Not Detected

J = Estimated value.

**Container Type: 6 Liter Summa Canister (100% Certified)**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	95	70-130
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	97	70-130

Client Sample ID: BPS1-AR003-INDL-5

Lab ID#: 1007700B-03A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c081921	Date of Collection: 7/28/10 4:25:00 PM
Dil. Factor:	1.61	Date of Analysis: 8/20/10 10:39 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.080	0.60	0.44	3.3
Trichloroethene	0.080	0.030 J	0.43	0.16 J
Tetrachloroethene	0.080	0.042 J	0.55	0.28 J
Vinyl Chloride	0.16	Not Detected	0.41	Not Detected
1,1-Dichloroethene	0.16	Not Detected	0.64	Not Detected
1,1-Dichloroethane	0.16	Not Detected	0.65	Not Detected
cis-1,2-Dichloroethene	0.16	Not Detected	0.64	Not Detected
1,2-Dichloroethane	0.16	0.41	0.65	1.6
trans-1,2-Dichloroethene	0.16	Not Detected	0.64	Not Detected

J = Estimated value.

**Container Type: 6 Liter Summa Canister (100% Certified)**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	94	70-130
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	100	70-130

Client Sample ID: BPS1-AR003-ODA3

Lab ID#: 1007700B-04A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c081922	Date of Collection: 7/28/10 4:35:00 PM
Dil. Factor:	2.12	Date of Analysis: 8/20/10 11:19 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.11	0.013 J	0.58	0.070 J
Trichloroethene	0.11	0.040 J	0.57	0.22 J
Tetrachloroethene	0.11	0.023 J	0.72	0.16 J
Vinyl Chloride	0.21	Not Detected	0.54	Not Detected
1,1-Dichloroethene	0.21	Not Detected	0.84	Not Detected
1,1-Dichloroethane	0.21	Not Detected	0.86	Not Detected
cis-1,2-Dichloroethene	0.21	Not Detected	0.84	Not Detected
1,2-Dichloroethane	0.21	0.068 J	0.86	0.27 J
trans-1,2-Dichloroethene	0.21	Not Detected	0.84	Not Detected

J = Estimated value.

**Container Type: 6 Liter Summa Canister (100% Certified)**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	89	70-130
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	94	70-130

Client Sample ID: BPS1-DUP01

Lab ID#: 1007700B-05A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c081923	Date of Collection: 7/28/10 12:00:00 PM
Dil. Factor:	3.14	Date of Analysis: 8/20/10 12:01 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.16	0.53	0.86	2.9
Trichloroethene	0.16	0.028 J	0.84	0.15 J
Tetrachloroethene	0.16	0.041 J	1.1	0.28 J
Vinyl Chloride	0.31	Not Detected	0.80	Not Detected
1,1-Dichloroethene	0.31	Not Detected	1.2	Not Detected
1,1-Dichloroethane	0.31	Not Detected	1.3	Not Detected
cis-1,2-Dichloroethene	0.31	Not Detected	1.2	Not Detected
1,2-Dichloroethane	0.31	0.37	1.3	1.5
trans-1,2-Dichloroethene	0.31	Not Detected	1.2	Not Detected

J = Estimated value.

**Container Type: 6 Liter Summa Canister (100% Certified)**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	87	70-130
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	99	70-130

Client Sample ID: Lab Blank

Lab ID#: 1007700B-06A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c081906a	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/19/10 10:23 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.050	Not Detected	0.27	Not Detected
Trichloroethene	0.050	Not Detected	0.27	Not Detected
Tetrachloroethene	0.050	Not Detected	0.34	Not Detected
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,1-Dichloroethane	0.10	Not Detected	0.40	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,2-Dichloroethane	0.10	Not Detected	0.40	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	89	70-130
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	95	70-130

Client Sample ID: CCV

Lab ID#: 1007700B-07A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

<b>File Name:</b>	<b>c081902</b>	<b>Date of Collection: NA</b>
<b>Dil. Factor:</b>	<b>1.00</b>	<b>Date of Analysis: 8/19/10 07:08 PM</b>

Compound	%Recovery
1,1,1-Trichloroethane	90
Trichloroethene	91
Tetrachloroethene	89
Vinyl Chloride	84
1,1-Dichloroethene	105
1,1-Dichloroethane	91
cis-1,2-Dichloroethene	90
1,2-Dichloroethane	88
trans-1,2-Dichloroethene	92

**Container Type: NA - Not Applicable**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	100	70-130
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	103	70-130

Client Sample ID: LCS

Lab ID#: 1007700B-08A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

<b>File Name:</b>	<b>c081903</b>	<b>Date of Collection: NA</b>
<b>Dil. Factor:</b>	<b>1.00</b>	<b>Date of Analysis: 8/19/10 08:17 PM</b>

Compound	%Recovery
1,1,1-Trichloroethane	83
Trichloroethene	84
Tetrachloroethene	84
Vinyl Chloride	87
1,1-Dichloroethene	82
1,1-Dichloroethane	80
cis-1,2-Dichloroethene	80
1,2-Dichloroethane	76
trans-1,2-Dichloroethene	84

**Container Type: NA - Not Applicable**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	100	70-130
1,2-Dichloroethane-d4	92	70-130
Toluene-d8	102	70-130

9/9/2010

Mr. David Brayack

Tetra Tech

Twin Oaks I, Suite 309

5700 Lake Wright Drive

Norfolk VA 23502

Project Name: CTO-WE06

Project #: 112G02019

Workorder #: 1008666A

Dear Mr. David Brayack

The following report includes the data for the above referenced project for sample(s) received on 8/27/2010 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott

Project Manager

## WORK ORDER #: 1008666A

### Work Order Summary

<b>CLIENT:</b>	Mr. David Brayack Tetra Tech Twin Oaks I, Suite 309 5700 Lake Wright Drive Norfolk, VA 23502	<b>BILL TO:</b>	Accounts Payable/Pittsburg Tetra Tech EC, Inc. Foster Plaza 7 661 Anderson Drive Pittsburgh, PA 15220-2745
<b>PHONE:</b>	(757) 461-3824	<b>P.O. #</b>	
<b>FAX:</b>	(757) 461-4148	<b>PROJECT #</b>	112G02019 CTO-WE06
<b>DATE RECEIVED:</b>	08/27/2010	<b>CONTACT:</b>	Ausha Scott
<b>DATE COMPLETED:</b>	09/09/2010		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	BPS1-AR003-ST05	Modified TO-15	4.0 "Hg	5 psi
02A	BPS1-AR004-ST05	Modified TO-15	4.0 "Hg	5 psi
03A	BPS1-AR002-ST05	Modified TO-15	5.0 "Hg	5 psi
04A	BPS1-AR013-ST05	Modified TO-15	5.2 "Hg	5 psi
05A	BPS1-AR014-ST05	Modified TO-15	1.8 "Hg	5 psi
06A	BPS1-AR002-ODA4	Modified TO-15	11.0 "Hg	5 psi
07A	BPS1-DUP01-20100824	Modified TO-15	2.6 "Hg	5 psi
08A	BPS1-SVPM-2002D-082510	Modified TO-15	2.6 "Hg	5 psi
09A	BPS1-SVPM-2002I-082510	Modified TO-15	5.0 "Hg	5 psi
10A	BPS1-SVPM-2002S-082510	Modified TO-15	2.6 "Hg	5 psi
11A	Lab Blank	Modified TO-15	NA	NA
11B	Lab Blank	Modified TO-15	NA	NA
12A	CCV	Modified TO-15	NA	NA
12B	CCV	Modified TO-15	NA	NA
13A	LCS	Modified TO-15	NA	NA
13AA	LCSD	Modified TO-15	NA	NA
13B	LCS	Modified TO-15	NA	NA

Continued on next page

**WORK ORDER #: 1008666A**

Work Order Summary

<b>CLIENT:</b>	Mr. David Brayack Tetra Tech Twin Oaks I, Suite 309 5700 Lake Wright Drive Norfolk, VA 23502	<b>BILL TO:</b>	Accounts Payable/Pittsburg Tetra Tech EC, Inc. Foster Plaza 7 661 Anderson Drive Pittsburgh, PA 15220-2745
<b>PHONE:</b>	(757) 461-3824	<b>P.O. #</b>	
<b>FAX:</b>	(757) 461-4148	<b>PROJECT #</b>	112G02019 CTO-WE06
<b>DATE RECEIVED:</b>	08/27/2010	<b>CONTACT:</b>	Ausha Scott
<b>DATE COMPLETED:</b>	09/09/2010		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
13BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY:



Laboratory Director

DATE: 09/09/10

Certification numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763,  
NY NELAP - 11291, UT NELAP - 9166389892, AZ Licensure AZ0719

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,  
Accreditation number: E87680, Effective date: 07/01/09, Expiration date: 06/30/10

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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**LABORATORY NARRATIVE**  
**Modified TO-15**  
**Tetra Tech**  
**Workorder# 1008666A**

Ten 6 Liter Summa Canister (100% Certified) samples were received on August 27, 2010. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
ICAL %RSD acceptance criteria	+/- 30% RSD with 2 compounds allowed out to < 40% RSD	30% RSD with 4 compounds allowed out to < 40% RSD
Daily Calibration	+/- 30% Difference	<= 30% Difference with four allowed out up to <=40%.; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases
Sample collection media	Summa canister	ATL recommends use of summa canisters to insure data defensibility, but will report results from Tedlar bags at client request

**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. All The canisters used for this project have been certified to the Reporting Limit for the target analytes included in this workorder. Concentrations that are below the level at which the canister was certified may be false positives.

The recovery of surrogate 4-Bromofluorobenzene in samples BPS1-AR004-ST05 and BPS1-AR002-ST05 was outside control limits due to high level hydrocarbon matrix interference. Data is reported as qualified.

### **Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

**Summary of Detected Compounds**  
**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

**Client Sample ID: BPS1-AR003-ST05**

**Lab ID#: 1008666A-01A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.078	0.43	0.42	2.4
Trichloroethene	0.078	0.81	0.42	4.3
Tetrachloroethene	0.078	0.36	0.52	2.4
1,1-Dichloroethene	0.16	0.038 J	0.61	0.15 J
1,1-Dichloroethane	0.16	0.013 J	0.63	0.053 J
1,2-Dichloroethane	0.16	0.42	0.63	1.7

**Client Sample ID: BPS1-AR004-ST05**

**Lab ID#: 1008666A-02A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)	Changes from data validation
1,1,1-Trichloroethane	0.078	0.032 J	0.42	0.17 J	
Trichloroethene	0.078	0.43	0.42	2.3 J	KLF 10/25/10
Tetrachloroethene	0.078	0.28	0.52	1.9 J	KLF 10/25/10
Vinyl Chloride	0.16	0.018 J	0.40	0.047 J	
1,1-Dichloroethane	0.16	0.015 J	0.63	0.061 J	
cis-1,2-Dichloroethene	0.16	0.0060 J	0.61	0.024 J	
1,2-Dichloroethane	0.16	0.038 J	0.63	0.15 J	

**Client Sample ID: BPS1-AR002-ST05**

**Lab ID#: 1008666A-03A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)	Changes from data validation
1,1,1-Trichloroethane	0.080	0.22	0.44	1.2 J	KLF - 10/25/10
Trichloroethene	0.080	1.8	0.43	9.6 J	KLF - 10/25/10
Tetrachloroethene	0.080	0.57	0.55	3.9 J	KLF - 10/25/10
1,1-Dichloroethene	0.16	0.012 J	0.64	0.048 J	
1,2-Dichloroethane	0.16	0.014 J	0.65	0.056 J	

**Client Sample ID: BPS1-AR013-ST05**

**Lab ID#: 1008666A-04A**

## Summary of Detected Compounds

### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

**Client Sample ID: BPS1-AR013-ST05**

**Lab ID#: 1008666A-04A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.081	0.057 J	0.44	0.31 J
Trichloroethene	0.081	0.16	0.44	0.87
Tetrachloroethene	0.081	0.33	0.55	2.2
1,2-Dichloroethane	0.16	0.020 J	0.66	0.082 J

**Client Sample ID: BPS1-AR014-ST05**

**Lab ID#: 1008666A-05A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.071	0.063 J	0.39	0.34 J
Trichloroethene	0.071	0.10	0.38	0.55
Tetrachloroethene	0.071	0.43	0.48	2.9
cis-1,2-Dichloroethene	0.14	0.0030 J	0.56	0.012 J
1,2-Dichloroethane	0.14	0.017 J	0.57	0.068 J

**Client Sample ID: BPS1-AR002-ODA4**

**Lab ID#: 1008666A-06A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.11	0.011 J	0.58	0.062 J
Trichloroethene	0.11	0.0090 J	0.57	0.048 J
Tetrachloroethene	0.11	0.024 J	0.72	0.16 J
1,2-Dichloroethane	0.21	0.019 J	0.86	0.076 J

**Client Sample ID: BPS1-DUP01-20100824**

**Lab ID#: 1008666A-07A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.074	0.062 J	0.40	0.34 J
Trichloroethene	0.074	0.18	0.40	0.94
Tetrachloroethene	0.074	0.37	0.50	2.5

## Summary of Detected Compounds

### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

**Client Sample ID: BPS1-DUP01-20100824**

**Lab ID#: 1008666A-07A**

1,1-Dichloroethane	0.15	0.0022 J	0.60	0.0088 J
1,2-Dichloroethane	0.15	0.0097 J	0.59	0.039 J

**Client Sample ID: BPS1-SVPM-2002D-082510**

**Lab ID#: 1008666A-08A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.074	0.19	0.40	1.0
Trichloroethene	0.074	1.9	0.40	10
Tetrachloroethene	0.074	0.60	0.50	4.0
Vinyl Chloride	0.15	0.0085 J	0.38	0.022 J
1,1-Dichloroethane	0.15	0.0066 J	0.60	0.027 J
cis-1,2-Dichloroethene	0.15	0.0055 J	0.58	0.022 J
1,2-Dichloroethane	0.15	0.013 J	0.59	0.054 J

**Client Sample ID: BPS1-SVPM-2002I-082510**

**Lab ID#: 1008666A-09A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.080	0.12	0.44	0.68
Trichloroethene	0.080	1.5	0.43	8.0
Tetrachloroethene	0.080	0.27	0.55	1.8
1,1-Dichloroethene	0.16	0.0093 J	0.64	0.037 J
1,1-Dichloroethane	0.16	0.0035 J	0.65	0.014 J
1,2-Dichloroethane	0.16	0.021 J	0.65	0.087 J

**Client Sample ID: BPS1-SVPM-2002S-082510**

**Lab ID#: 1008666A-10A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.074	0.22	0.40	1.2
Trichloroethene	0.074	3.1	0.40	17
Tetrachloroethene	0.074	0.44	0.50	3.0

**Summary of Detected Compounds**  
**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

**Client Sample ID: BPS1-SVPM-2002S-082510**

**Lab ID#: 1008666A-10A**

Vinyl Chloride	0.15	0.011 J	0.38	0.028 J
1,1-Dichloroethene	0.15	0.018 J	0.58	0.071 J
1,1-Dichloroethane	0.15	0.0043 J	0.60	0.017 J
1,2-Dichloroethane	0.15	0.019 J	0.59	0.076 J

Client Sample ID: BPS1-AR003-ST05

Lab ID#: 1008666A-01A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c090813	Date of Collection: 8/24/10 2:54:00 PM
Dil. Factor:	1.55	Date of Analysis: 9/8/10 06:12 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.078	0.43	0.42	2.4
Trichloroethene	0.078	0.81	0.42	4.3
Tetrachloroethene	0.078	0.36	0.52	2.4
Vinyl Chloride	0.16	Not Detected	0.40	Not Detected
1,1-Dichloroethene	0.16	0.038 J	0.61	0.15 J
1,1-Dichloroethane	0.16	0.013 J	0.63	0.053 J
cis-1,2-Dichloroethene	0.16	Not Detected	0.61	Not Detected
1,2-Dichloroethane	0.16	0.42	0.63	1.7
trans-1,2-Dichloroethene	0.16	Not Detected	0.61	Not Detected

J = Estimated value.

**Container Type: 6 Liter Summa Canister (100% Certified)**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	130	70-130
1,2-Dichloroethane-d4	90	70-130
Toluene-d8	91	70-130

Client Sample ID: BPS1-AR004-ST05

Lab ID#: 1008666A-02A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c090812	Date of Collection: 8/24/10 3:00:00 PM
Dil. Factor:	1.55	Date of Analysis: 9/8/10 05:25 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.078	0.032 J	0.42	0.17 J
Trichloroethene	0.078	0.43	0.42	2.3 J
Tetrachloroethene	0.078	0.28	0.52	1.9 J
Vinyl Chloride	0.16	0.018 J	0.40	0.047 J
1,1-Dichloroethene	0.16	Not Detected	0.61	Not Detected
1,1-Dichloroethane	0.16	0.015 J	0.63	0.061 J
cis-1,2-Dichloroethene	0.16	0.0060 J	0.61	0.024 J
1,2-Dichloroethane	0.16	0.038 J	0.63	0.15 J
trans-1,2-Dichloroethene	0.16	Not Detected	0.61	Not Detected

Changes from  
data validation  
KLF 10/25/10

J = Estimated value.

Q = Exceeds Quality Control limits of 70% to 130%, due to matrix effects.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	135 Q	70-130
1,2-Dichloroethane-d4	87	70-130
Toluene-d8	87	70-130



Client Sample ID: BPS1-AR002-ST05

Lab ID#: 1008666A-03A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c090814	Date of Collection: 8/24/10 3:44:00 PM
Dil. Factor:	1.61	Date of Analysis: 9/8/10 07:03 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)	Changes from data validation
1,1,1-Trichloroethane	0.080	0.22	0.44	1.2 J	KLF-1012510
Trichloroethene	0.080	1.8	0.43	9.6 J	KLF-10125110
Tetrachloroethene	0.080	0.57	0.55	3.9 J	KLF-10125110
Vinyl Chloride	0.16	Not Detected	0.41	Not Detected	
1,1-Dichloroethene	0.16	0.012 J	0.64	0.048 J	
1,1-Dichloroethane	0.16	Not Detected	0.65	Not Detected	
cis-1,2-Dichloroethene	0.16	Not Detected	0.64	Not Detected	
1,2-Dichloroethane	0.16	0.014 J	0.65	0.056 J	
trans-1,2-Dichloroethene	0.16	Not Detected	0.64	Not Detected	

J = Estimated value.

Q = Exceeds Quality Control limits of 70% to 130%, due to matrix effects.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	138 Q	70-130
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	88	70-130

Client Sample ID: BPS1-AR013-ST05

Lab ID#: 1008666A-04A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c090816	Date of Collection: 8/24/10 4:41:00 PM
Dil. Factor:	1.62	Date of Analysis: 9/8/10 08:39 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.081	0.057 J	0.44	0.31 J
Trichloroethene	0.081	0.16	0.44	0.87
Tetrachloroethene	0.081	0.33	0.55	2.2
Vinyl Chloride	0.16	Not Detected	0.41	Not Detected
1,1-Dichloroethene	0.16	Not Detected	0.64	Not Detected
1,1-Dichloroethane	0.16	Not Detected	0.66	Not Detected
cis-1,2-Dichloroethene	0.16	Not Detected	0.64	Not Detected
1,2-Dichloroethane	0.16	0.020 J	0.66	0.082 J
trans-1,2-Dichloroethene	0.16	Not Detected	0.64	Not Detected

J = Estimated value.

**Container Type: 6 Liter Summa Canister (100% Certified)**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	127	70-130
1,2-Dichloroethane-d4	90	70-130
Toluene-d8	91	70-130

Client Sample ID: BPS1-AR014-ST05

Lab ID#: 1008666A-05A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c090817	Date of Collection: 8/24/10 4:47:00 PM
Dil. Factor:	1.42	Date of Analysis: 9/8/10 09:28 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.071	0.063 J	0.39	0.34 J
Trichloroethene	0.071	0.10	0.38	0.55
Tetrachloroethene	0.071	0.43	0.48	2.9
Vinyl Chloride	0.14	Not Detected	0.36	Not Detected
1,1-Dichloroethene	0.14	Not Detected	0.56	Not Detected
1,1-Dichloroethane	0.14	Not Detected	0.57	Not Detected
cis-1,2-Dichloroethene	0.14	0.0030 J	0.56	0.012 J
1,2-Dichloroethane	0.14	0.017 J	0.57	0.068 J
trans-1,2-Dichloroethene	0.14	Not Detected	0.56	Not Detected

J = Estimated value.

**Container Type: 6 Liter Summa Canister (100% Certified)**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	125	70-130
1,2-Dichloroethane-d4	94	70-130
Toluene-d8	86	70-130

Client Sample ID: BPS1-AR002-ODA4

Lab ID#: 1008666A-06A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c090818	Date of Collection: 8/24/10 6:14:00 PM
Dil. Factor:	2.12	Date of Analysis: 9/8/10 10:13 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.11	0.011 J	0.58	0.062 J
Trichloroethene	0.11	0.0090 J	0.57	0.048 J
Tetrachloroethene	0.11	0.024 J	0.72	0.16 J
Vinyl Chloride	0.21	Not Detected	0.54	Not Detected
1,1-Dichloroethene	0.21	Not Detected	0.84	Not Detected
1,1-Dichloroethane	0.21	Not Detected	0.86	Not Detected
cis-1,2-Dichloroethene	0.21	Not Detected	0.84	Not Detected
1,2-Dichloroethane	0.21	0.019 J	0.86	0.076 J
trans-1,2-Dichloroethene	0.21	Not Detected	0.84	Not Detected

J = Estimated value.

**Container Type: 6 Liter Summa Canister (100% Certified)**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	109	70-130
1,2-Dichloroethane-d4	92	70-130
Toluene-d8	85	70-130

Client Sample ID: BPS1-DUP01-20100824

Lab ID#: 1008666A-07A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c090819	Date of Collection: 8/24/10
Dil. Factor:	1.47	Date of Analysis: 9/8/10 10:59 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.074	0.062 J	0.40	0.34 J
Trichloroethene	0.074	0.18	0.40	0.94
Tetrachloroethene	0.074	0.37	0.50	2.5
Vinyl Chloride	0.15	Not Detected	0.38	Not Detected
1,1-Dichloroethene	0.15	Not Detected	0.58	Not Detected
1,1-Dichloroethane	0.15	0.0022 J	0.60	0.0088 J
cis-1,2-Dichloroethene	0.15	Not Detected	0.58	Not Detected
1,2-Dichloroethane	0.15	0.0097 J	0.59	0.039 J
trans-1,2-Dichloroethene	0.15	Not Detected	0.58	Not Detected

J = Estimated value.

**Container Type: 6 Liter Summa Canister (100% Certified)**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	125	70-130
1,2-Dichloroethane-d4	94	70-130
Toluene-d8	91	70-130

Client Sample ID: BPS1-SVPM-2002D-082510

Lab ID#: 1008666A-08A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c090820	Date of Collection: 8/25/10 2:58:00 PM
Dil. Factor:	1.47	Date of Analysis: 9/9/10 07:38 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.074	0.19	0.40	1.0
Trichloroethene	0.074	1.9	0.40	10
Tetrachloroethene	0.074	0.60	0.50	4.0
Vinyl Chloride	0.15	0.0085 J	0.38	0.022 J
1,1-Dichloroethene	0.15	Not Detected	0.58	Not Detected
1,1-Dichloroethane	0.15	0.0066 J	0.60	0.027 J
cis-1,2-Dichloroethene	0.15	0.0055 J	0.58	0.022 J
1,2-Dichloroethane	0.15	0.013 J	0.59	0.054 J
trans-1,2-Dichloroethene	0.15	Not Detected	0.58	Not Detected

J = Estimated value.

**Container Type: 6 Liter Summa Canister (100% Certified)**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	120	70-130
1,2-Dichloroethane-d4	94	70-130
Toluene-d8	105	70-130

Client Sample ID: BPS1-SVPM-2002I-082510

Lab ID#: 1008666A-09A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c090821	Date of Collection: 8/25/10 3:28:00 PM
Dil. Factor:	1.61	Date of Analysis: 9/9/10 08:23 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.080	0.12	0.44	0.68
Trichloroethene	0.080	1.5	0.43	8.0
Tetrachloroethene	0.080	0.27	0.55	1.8
Vinyl Chloride	0.16	Not Detected	0.41	Not Detected
1,1-Dichloroethene	0.16	0.0093 J	0.64	0.037 J
1,1-Dichloroethane	0.16	0.0035 J	0.65	0.014 J
cis-1,2-Dichloroethene	0.16	Not Detected	0.64	Not Detected
1,2-Dichloroethane	0.16	0.021 J	0.65	0.087 J
trans-1,2-Dichloroethene	0.16	Not Detected	0.64	Not Detected

J = Estimated value.

**Container Type: 6 Liter Summa Canister (100% Certified)**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	118	70-130
1,2-Dichloroethane-d4	94	70-130
Toluene-d8	103	70-130

Client Sample ID: BPS1-SVPM-2002S-082510

Lab ID#: 1008666A-10A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c090908	Date of Collection: 8/25/10 4:25:00 PM
Dil. Factor:	1.47	Date of Analysis: 9/9/10 03:04 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.074	0.22	0.40	1.2
Trichloroethene	0.074	3.1	0.40	17
Tetrachloroethene	0.074	0.44	0.50	3.0
Vinyl Chloride	0.15	0.011 J	0.38	0.028 J
1,1-Dichloroethene	0.15	0.018 J	0.58	0.071 J
1,1-Dichloroethane	0.15	0.0043 J	0.60	0.017 J
cis-1,2-Dichloroethene	0.15	Not Detected	0.58	Not Detected
1,2-Dichloroethane	0.15	0.019 J	0.59	0.076 J
trans-1,2-Dichloroethene	0.15	Not Detected	0.58	Not Detected

J = Estimated value.

**Container Type: 6 Liter Summa Canister (100% Certified)**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	129	70-130
1,2-Dichloroethane-d4	94	70-130
Toluene-d8	98	70-130

Client Sample ID: Lab Blank

Lab ID#: 1008666A-11A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c090809a	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/8/10 02:27 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.050	Not Detected	0.27	Not Detected
Trichloroethene	0.050	Not Detected	0.27	Not Detected
Tetrachloroethene	0.050	Not Detected	0.34	Not Detected
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,1-Dichloroethane	0.10	Not Detected	0.40	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,2-Dichloroethane	0.10	Not Detected	0.40	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	103	70-130
1,2-Dichloroethane-d4	93	70-130
Toluene-d8	85	70-130

Client Sample ID: Lab Blank

Lab ID#: 1008666A-11B

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c090907a	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/9/10 01:53 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.050	Not Detected	0.27	Not Detected
Trichloroethene	0.050	Not Detected	0.27	Not Detected
Tetrachloroethene	0.050	Not Detected	0.34	Not Detected
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,1-Dichloroethane	0.10	Not Detected	0.40	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,2-Dichloroethane	0.10	Not Detected	0.40	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	105	70-130
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	87	70-130

Client Sample ID: CCV

Lab ID#: 1008666A-12A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

<b>File Name:</b>	<b>c090802</b>	<b>Date of Collection: NA</b>
<b>Dil. Factor:</b>	<b>1.00</b>	<b>Date of Analysis: 9/8/10 09:23 AM</b>

Compound	%Recovery
1,1,1-Trichloroethane	91
Trichloroethene	99
Tetrachloroethene	113
Vinyl Chloride	75
1,1-Dichloroethene	88
1,1-Dichloroethane	85
cis-1,2-Dichloroethene	83
1,2-Dichloroethane	97
trans-1,2-Dichloroethene	86

**Container Type: NA - Not Applicable**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	107	70-130
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	100	70-130

Client Sample ID: CCV

Lab ID#: 1008666A-12B

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

<b>File Name:</b>	<b>c090902</b>	<b>Date of Collection: NA</b>
<b>Dil. Factor:</b>	<b>1.00</b>	<b>Date of Analysis: 9/9/10 09:32 AM</b>

Compound	%Recovery
1,1,1-Trichloroethane	95
Trichloroethene	98
Tetrachloroethene	107
Vinyl Chloride	84
1,1-Dichloroethene	94
1,1-Dichloroethane	90
cis-1,2-Dichloroethene	86
1,2-Dichloroethane	101
trans-1,2-Dichloroethene	88

**Container Type: NA - Not Applicable**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	105	70-130
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	99	70-130

Client Sample ID: LCS

Lab ID#: 1008666A-13A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c090804	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/8/10 10:59 AM

Compound	%Recovery
1,1,1-Trichloroethane	89
Trichloroethene	93
Tetrachloroethene	104
Vinyl Chloride	74
1,1-Dichloroethene	77
1,1-Dichloroethane	80
cis-1,2-Dichloroethene	80
1,2-Dichloroethane	90
trans-1,2-Dichloroethene	83

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	109	70-130
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	101	70-130

Client Sample ID: LCSD

Lab ID#: 1008666A-13AA

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

<b>File Name:</b>	<b>c090805</b>	<b>Date of Collection: NA</b>
<b>Dil. Factor:</b>	<b>1.00</b>	<b>Date of Analysis: 9/8/10 11:42 AM</b>

Compound	%Recovery
1,1,1-Trichloroethane	89
Trichloroethene	92
Tetrachloroethene	103
Vinyl Chloride	76
1,1-Dichloroethene	78
1,1-Dichloroethane	81
cis-1,2-Dichloroethene	80
1,2-Dichloroethane	89
trans-1,2-Dichloroethene	82

**Container Type: NA - Not Applicable**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	105	70-130
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	100	70-130

Client Sample ID: LCS

Lab ID#: 1008666A-13B

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

<b>File Name:</b>	<b>c090904</b>	<b>Date of Collection: NA</b>
<b>Dil. Factor:</b>	<b>1.00</b>	<b>Date of Analysis: 9/9/10 11:39 AM</b>

Compound	%Recovery
1,1,1-Trichloroethane	90
Trichloroethene	93
Tetrachloroethene	101
Vinyl Chloride	77
1,1-Dichloroethene	82
1,1-Dichloroethane	82
cis-1,2-Dichloroethene	81
1,2-Dichloroethane	96
trans-1,2-Dichloroethene	84

**Container Type: NA - Not Applicable**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	108	70-130
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	100	70-130

Client Sample ID: LCSD

Lab ID#: 1008666A-13BB

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

<b>File Name:</b>	<b>c090905</b>	<b>Date of Collection: NA</b>
<b>Dil. Factor:</b>	<b>1.00</b>	<b>Date of Analysis: 9/9/10 12:22 PM</b>

Compound	%Recovery
1,1,1-Trichloroethane	88
Trichloroethene	94
Tetrachloroethene	101
Vinyl Chloride	75
1,1-Dichloroethene	81
1,1-Dichloroethane	82
cis-1,2-Dichloroethene	81
1,2-Dichloroethane	97
trans-1,2-Dichloroethene	83

**Container Type: NA - Not Applicable**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	110	70-130
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	100	70-130

9/16/2010

Mr. David Brayack

Tetra Tech

Twin Oaks I, Suite 309

5700 Lake Wright Drive

Norfolk VA 23502

Project Name: CTO-WE06

Project #: 112G02019

Workorder #: 1008666B

Dear Mr. David Brayack

The following report includes the data for the above referenced project for sample(s) received on 8/27/2010 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott

Project Manager

## WORK ORDER #: 1008666B

### Work Order Summary

<b>CLIENT:</b>	Mr. David Brayack Tetra Tech Twin Oaks I, Suite 309 5700 Lake Wright Drive Norfolk, VA 23502	<b>BILL TO:</b>	Accounts Payable/Pittsburg Tetra Tech EC, Inc. Foster Plaza 7 661 Anderson Drive Pittsburgh, PA 15220-2745
<b>PHONE:</b>	(757) 461-3824	<b>P.O. #</b>	
<b>FAX:</b>	(757) 461-4148	<b>PROJECT #</b>	112G02019 CTO-WE06
<b>DATE RECEIVED:</b>	08/27/2010	<b>CONTACT:</b>	Ausha Scott
<b>DATE COMPLETED:</b>	09/16/2010		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
11A	BPS1-SVPM-2003D-082510	Modified TO-15	2.5 "Hg	5 psi
12A	BPS1-SVPM-ODA-082510	Modified TO-15	13.0 "Hg	5 psi
13A	BPS1-SVPM-2004I-082610	Modified TO-15	4.0 "Hg	5 psi
14A	BPS1-SVPM-2004D-082610	Modified TO-15	4.5 "Hg	5 psi
15A	BPS1-SVPM-DUP02-082610	Modified TO-15	4.5 "Hg	5 psi
16A	BPS1-SVPM-2007D-082610	Modified TO-15	2.5 "Hg	5 psi
17A	BPS1-SVPM-12S-082610	Modified TO-15	3.5 "Hg	5 psi
18A	BPS1-SVPM-11S-082610	Modified TO-15	4.0 "Hg	5 psi
19A	BPS1-SVPM-2003I-082610	Modified TO-15	4.5 "Hg	5 psi
20A	BPS1-DUP03-082610	Modified TO-15	6.5 "Hg	5 psi
21A	BPS1-SVPM-ODA-082610	Modified TO-15	10.0 "Hg	5 psi
22A	Lab Blank	Modified TO-15	NA	NA
22B	Lab Blank	Modified TO-15	NA	NA
23A	CCV	Modified TO-15	NA	NA
23B	CCV	Modified TO-15	NA	NA
24A	LCS	Modified TO-15	NA	NA
24AA	LCSD	Modified TO-15	NA	NA

Continued on next page

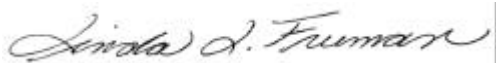
**WORK ORDER #: 1008666B**

Work Order Summary

<b>CLIENT:</b>	Mr. David Brayack Tetra Tech Twin Oaks I, Suite 309 5700 Lake Wright Drive Norfolk, VA 23502	<b>BILL TO:</b>	Accounts Payable/Pittsburg Tetra Tech EC, Inc. Foster Plaza 7 661 Anderson Drive Pittsburgh, PA 15220-2745
<b>PHONE:</b>	(757) 461-3824	<b>P.O. #</b>	
<b>FAX:</b>	(757) 461-4148	<b>PROJECT #</b>	112G02019 CTO-WE06
<b>DATE RECEIVED:</b>	08/27/2010	<b>CONTACT:</b>	Ausha Scott
<b>DATE COMPLETED:</b>	09/16/2010		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
24B	LCS	Modified TO-15	NA	NA
24BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY:



Laboratory Director

DATE: 09/16/10

Certification numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763,  
NY NELAP - 11291, UT NELAP - 9166389892, AZ Licensure AZ0719

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,  
Accreditation number: E87680, Effective date: 07/01/09, Expiration date: 06/30/10

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE  
Modified TO-15 Std & LL Full Scan  
Tetra Tech  
Workorder# 1008666B**

Eleven 6 Liter Summa Canister (100% Certified) samples were received on August 27, 2010. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the Full Scan mode. The method involves concentrating up to 1.0 liter of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-14A</i>	<i>ATL Modifications</i>
ICAL %RSD acceptance criteria	$\leq 30\%$ RSD with 2 compounds allowed out to $\leq 40\%$ RSD	For LL Full Scan only: $\leq 30\%$ RSD with 4 compounds allowed out to $\leq 40\%$ RSD
Daily Calibration	$\pm 30\%$ Difference	For Std. Full Scan: $\leq 30\%$ Difference with two allowed out up to $\leq 40\%$ .; flag and narrate outliers  For LL Full Scan: $\leq 30\%$ Difference with four allowed out up to $\leq 40\%$ .; flag and narrate outliers
Blank and standards	Zero air	For LL Full Scan only: Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases
Sample collection media	Summa canister	ATL recommends use of summa canisters to insure data defensibility, but will report results from Tedlar bags at client request

**Receiving Notes**

The Chain of Custody (COC) information for sample BPS1-DUP03-082610 did not match the entry on the sample tag with regard to sample identification. The information on the COC was used to process and report the sample.

### **Analytical Notes**

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. All The canisters used for this project have been certified to the Reporting Limit for the target analytes included in this workorder. Concentrations that are below the level at which the canister was certified may be false positives.

Samples BPS1-SVPM-12S-082610, BPS1-SVPM-11S-082610 and BPS1-DUP03-082610 were transferred from Low Level analysis to full scan TO-15 due to high levels of target compounds.

### **Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

## Summary of Detected Compounds

### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

**Client Sample ID: BPS1-SVPM-2003D-082510**

**Lab ID#: 1008666B-11A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.073	0.21	0.40	1.2
Trichloroethene	0.073	0.96	0.39	5.2
Tetrachloroethene	0.073	0.37	0.50	2.5
1,1-Dichloroethane	0.15	0.0065 J	0.59	0.026 J
1,2-Dichloroethane	0.15	0.016 J	0.59	0.063 J

**Client Sample ID: BPS1-SVPM-ODA-082510**

**Lab ID#: 1008666B-12A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.12	0.0066 J	0.64	0.036 J
Trichloroethene	0.12	0.0082 J	0.63	0.044 J
Tetrachloroethene	0.12	0.040 J	0.80	0.27 J
1,2-Dichloroethane	0.24	0.020 J	0.96	0.082 J

**Client Sample ID: BPS1-SVPM-2004I-082610**

**Lab ID#: 1008666B-13A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.078	0.037 J	0.42	0.20 J
Trichloroethene	0.078	0.053 J	0.42	0.28 J
Tetrachloroethene	0.078	0.27	0.52	1.8
Vinyl Chloride	0.16	0.0062 J	0.40	0.016 J
1,1-Dichloroethene	0.16	0.011 J	0.61	0.043 J
1,1-Dichloroethane	0.16	0.018 J	0.63	0.072 J
1,2-Dichloroethane	0.16	0.016 J	0.63	0.065 J
trans-1,2-Dichloroethene	0.16	0.0037 J	0.61	0.015 J

**Client Sample ID: BPS1-SVPM-2004D-082610**

**Lab ID#: 1008666B-14A**

## Summary of Detected Compounds

### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

**Client Sample ID: BPS1-SVPM-2004D-082610**

**Lab ID#: 1008666B-14A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.079	0.061 J	0.43	0.33 J
Trichloroethene	0.079	0.087	0.42	0.47
Tetrachloroethene	0.079	0.43	0.54	2.9
Vinyl Chloride	0.16	0.016 J	0.40	0.042 J
1,1-Dichloroethane	0.16	0.0074 J	0.64	0.030 J
1,2-Dichloroethane	0.16	0.019 J	0.64	0.078 J

**Client Sample ID: BPS1-SVPM-DUP02-082610**

**Lab ID#: 1008666B-15A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.079	0.030 J	0.43	0.17 J
Trichloroethene	0.079	0.049 J	0.42	0.26 J
Tetrachloroethene	0.079	0.31	0.54	2.1
Vinyl Chloride	0.16	0.011 J	0.40	0.028 J
1,1-Dichloroethane	0.16	0.020 J	0.64	0.079 J
1,2-Dichloroethane	0.16	0.014 J	0.64	0.056 J

**Client Sample ID: BPS1-SVPM-2007D-082610**

**Lab ID#: 1008666B-16A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.073	0.27	0.40	1.5
Trichloroethene	0.073	0.29	0.39	1.5
Tetrachloroethene	0.073	0.40	0.50	2.7
Vinyl Chloride	0.15	0.014 J	0.37	0.036 J
1,1-Dichloroethane	0.15	0.010 J	0.59	0.041 J
cis-1,2-Dichloroethene	0.15	0.24	0.58	0.95
1,2-Dichloroethane	0.15	0.027 J	0.59	0.11 J
trans-1,2-Dichloroethene	0.15	0.014 J	0.58	0.054 J

**Summary of Detected Compounds  
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

**Client Sample ID: BPS1-SVPM-12S-082610**

**Lab ID#: 1008666B-17A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethane	0.76	0.29 J	3.1	1.2 J
cis-1,2-Dichloroethene	0.76	36	3.0	140
1,1,1-Trichloroethane	0.76	13	4.1	71
Trichloroethene	0.76	220	4.1	1200
trans-1,2-Dichloroethene	0.76	0.57 J	3.0	2.2 J
1,2-Dichloroethane	0.76	0.58 J	3.1	2.3 J
Tetrachloroethene	0.76	8.1	5.2	55 ug/m3

*not detected  
KLC-10/25/10  
55 ug/m3 blank  
contamination*

**Client Sample ID: BPS1-SVPM-11S-082610**

**Lab ID#: 1008666B-18A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	2.1	9.7	8.2	38
1,1,1-Trichloroethane	2.1	3.0	11	16
Trichloroethene	2.1	570	11	3100
trans-1,2-Dichloroethene	2.1	1.0 J	8.2	4.1 J
Tetrachloroethene	2.1	49	14	330

**Client Sample ID: BPS1-SVPM-2003I-082610**

**Lab ID#: 1008666B-19A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.079	0.043 J	0.43	0.23 J
Trichloroethene	0.079	0.066 J	0.42	0.36 J
Tetrachloroethene	0.079	0.74	0.54	5.0

**Client Sample ID: BPS1-DUP03-082610**

**Lab ID#: 1008666B-20A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethane	0.86	0.32 J	3.5	1.3 J

## Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

**Client Sample ID: BPS1-DUP03-082610**

**Lab ID#: 1008666B-20A**

cis-1,2-Dichloroethene	0.86	39	3.4	150
1,1,1-Trichloroethane	0.86	14	4.7	74
Trichloroethene	0.86	220	4.6	1200
trans-1,2-Dichloroethene	0.86	0.63 J	3.4	2.5 J
1,2-Dichloroethane	0.86	0.16 J	3.5	<del>0.65 J</del> not detected RLF 10/25/10
Tetrachloroethene	0.86	7.8	5.8	53 blank confirmation

**Client Sample ID: BPS1-SVPM-ODA-082610**

**Lab ID#: 1008666B-21A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.10	0.0068 J	0.55	0.037 J
Trichloroethene	0.10	0.0074 J	0.54	0.040 J
Tetrachloroethene	0.10	0.036 J	0.68	0.24 J
cis-1,2-Dichloroethene	0.20	0.0064 J	0.80	0.026 J
1,2-Dichloroethane	0.20	0.025 J	0.81	0.10 J

Client Sample ID: BPS1-SVPM-2003D-082510

Lab ID#: 1008666B-11A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c090909	Date of Collection: 8/25/10 6:00:00 PM
Dil. Factor:	1.46	Date of Analysis: 9/9/10 03:57 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.073	0.21	0.40	1.2
Trichloroethene	0.073	0.96	0.39	5.2
Tetrachloroethene	0.073	0.37	0.50	2.5
Vinyl Chloride	0.15	Not Detected	0.37	Not Detected
1,1-Dichloroethene	0.15	Not Detected	0.58	Not Detected
1,1-Dichloroethane	0.15	0.0065 J	0.59	0.026 J
cis-1,2-Dichloroethene	0.15	Not Detected	0.58	Not Detected
1,2-Dichloroethane	0.15	0.016 J	0.59	0.063 J
trans-1,2-Dichloroethene	0.15	Not Detected	0.58	Not Detected

J = Estimated value.

**Container Type: 6 Liter Summa Canister (100% Certified)**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	124	70-130
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	103	70-130

Client Sample ID: BPS1-SVPM-ODA-082510

Lab ID#: 1008666B-12A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c090910	Date of Collection: 8/25/10 6:03:00 PM
Dil. Factor:	2.36	Date of Analysis: 9/9/10 05:15 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.12	0.0066 J	0.64	0.036 J
Trichloroethene	0.12	0.0082 J	0.63	0.044 J
Tetrachloroethene	0.12	0.040 J	0.80	0.27 J
Vinyl Chloride	0.24	Not Detected	0.60	Not Detected
1,1-Dichloroethene	0.24	Not Detected	0.94	Not Detected
1,1-Dichloroethane	0.24	Not Detected	0.96	Not Detected
cis-1,2-Dichloroethene	0.24	Not Detected	0.94	Not Detected
1,2-Dichloroethane	0.24	0.020 J	0.96	0.082 J
trans-1,2-Dichloroethene	0.24	Not Detected	0.94	Not Detected

J = Estimated value.

**Container Type: 6 Liter Summa Canister (100% Certified)**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	115	70-130
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	86	70-130

Client Sample ID: BPS1-SVPM-2004I-082610

Lab ID#: 1008666B-13A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c090911	Date of Collection: 8/26/10 9:18:00 AM
Dil. Factor:	1.55	Date of Analysis: 9/9/10 06:00 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.078	0.037 J	0.42	0.20 J
Trichloroethene	0.078	0.053 J	0.42	0.28 J
Tetrachloroethene	0.078	0.27	0.52	1.8
Vinyl Chloride	0.16	0.0062 J	0.40	0.016 J
1,1-Dichloroethene	0.16	0.011 J	0.61	0.043 J
1,1-Dichloroethane	0.16	0.018 J	0.63	0.072 J
cis-1,2-Dichloroethene	0.16	Not Detected	0.61	Not Detected
1,2-Dichloroethane	0.16	0.016 J	0.63	0.065 J
trans-1,2-Dichloroethene	0.16	0.0037 J	0.61	0.015 J

J = Estimated value.

**Container Type: 6 Liter Summa Canister (100% Certified)**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	121	70-130
1,2-Dichloroethane-d4	92	70-130
Toluene-d8	99	70-130

Client Sample ID: BPS1-SVPM-2004D-082610

Lab ID#: 1008666B-14A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c090912	Date of Collection: 8/26/10 9:20:00 AM
Dil. Factor:	1.58	Date of Analysis: 9/9/10 06:44 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.079	0.061 J	0.43	0.33 J
Trichloroethene	0.079	0.087	0.42	0.47
Tetrachloroethene	0.079	0.43	0.54	2.9
Vinyl Chloride	0.16	0.016 J	0.40	0.042 J
1,1-Dichloroethene	0.16	Not Detected	0.63	Not Detected
1,1-Dichloroethane	0.16	0.0074 J	0.64	0.030 J
cis-1,2-Dichloroethene	0.16	Not Detected	0.63	Not Detected
1,2-Dichloroethane	0.16	0.019 J	0.64	0.078 J
trans-1,2-Dichloroethene	0.16	Not Detected	0.63	Not Detected

J = Estimated value.

**Container Type: 6 Liter Summa Canister (100% Certified)**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	126	70-130
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	106	70-130

Client Sample ID: BPS1-SVPM-DUP02-082610

Lab ID#: 1008666B-15A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c090913	Date of Collection: 8/26/10 12:00:00 PM
Dil. Factor:	1.58	Date of Analysis: 9/9/10 07:23 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.079	0.030 J	0.43	0.17 J
Trichloroethene	0.079	0.049 J	0.42	0.26 J
Tetrachloroethene	0.079	0.31	0.54	2.1
Vinyl Chloride	0.16	0.011 J	0.40	0.028 J
1,1-Dichloroethene	0.16	Not Detected	0.63	Not Detected
1,1-Dichloroethane	0.16	0.020 J	0.64	0.079 J
cis-1,2-Dichloroethene	0.16	Not Detected	0.63	Not Detected
1,2-Dichloroethane	0.16	0.014 J	0.64	0.056 J
trans-1,2-Dichloroethene	0.16	Not Detected	0.63	Not Detected

J = Estimated value.

**Container Type: 6 Liter Summa Canister (100% Certified)**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	124	70-130
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	102	70-130

Client Sample ID: BPS1-SVPM-2007D-082610

Lab ID#: 1008666B-16A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c090914	Date of Collection: 8/26/10 10:40:00 AM
Dil. Factor:	1.46	Date of Analysis: 9/9/10 08:55 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.073	0.27	0.40	1.5
Trichloroethene	0.073	0.29	0.39	1.5
Tetrachloroethene	0.073	0.40	0.50	2.7
Vinyl Chloride	0.15	0.014 J	0.37	0.036 J
1,1-Dichloroethene	0.15	Not Detected	0.58	Not Detected
1,1-Dichloroethane	0.15	0.010 J	0.59	0.041 J
cis-1,2-Dichloroethene	0.15	0.24	0.58	0.95
1,2-Dichloroethane	0.15	0.027 J	0.59	0.11 J
trans-1,2-Dichloroethene	0.15	0.014 J	0.58	0.054 J

J = Estimated value.

**Container Type: 6 Liter Summa Canister (100% Certified)**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	122	70-130
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	109	70-130

Client Sample ID: BPS1-SVPM-12S-082610

Lab ID#: 1008666B-17A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	p091411	Date of Collection: 8/26/10 12:38:00 PM
Dil. Factor:	1.52	Date of Analysis: 9/14/10 04:23 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.76	Not Detected	1.9	Not Detected
1,1-Dichloroethene	0.76	Not Detected	3.0	Not Detected
1,1-Dichloroethane	0.76	0.29 J	3.1	1.2 J
cis-1,2-Dichloroethene	0.76	36	3.0	140
1,1,1-Trichloroethane	0.76	13	4.1	71
Trichloroethene	0.76	220	4.1	1200
trans-1,2-Dichloroethene	0.76	0.57 J	3.0	2.2 J
1,2-Dichloroethane	0.76	0.58 J	3.1	<del>2.5 J</del> not detected KIS 10/26/10
Tetrachloroethene	0.76	8.1	5.2	55 Blank contamination

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	99	70-130

Client Sample ID: BPS1-SVPM-11S-082610

Lab ID#: 1008666B-18A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	p091416	Date of Collection: 8/26/10 12:57:00 PM
Dil. Factor:	4.13	Date of Analysis: 9/14/10 06:20 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	2.1	Not Detected	5.3	Not Detected
1,1-Dichloroethene	2.1	Not Detected	8.2	Not Detected
1,1-Dichloroethane	2.1	Not Detected	8.4	Not Detected
cis-1,2-Dichloroethene	2.1	9.7	8.2	38
1,1,1-Trichloroethane	2.1	3.0	11	16
Trichloroethene	2.1	570	11	3100
trans-1,2-Dichloroethene	2.1	1.0 J	8.2	4.1 J
1,2-Dichloroethane	2.1	Not Detected	8.4	Not Detected
Tetrachloroethene	2.1	49	14	330

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	100	70-130

Client Sample ID: BPS1-SVPM-2003I-082610

Lab ID#: 1008666B-19A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c090915	Date of Collection: 8/26/10 3:01:00 PM
Dil. Factor:	1.58	Date of Analysis: 9/9/10 09:36 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.079	0.043 J	0.43	0.23 J
Trichloroethene	0.079	0.066 J	0.42	0.36 J
Tetrachloroethene	0.079	0.74	0.54	5.0
Vinyl Chloride	0.16	Not Detected	0.40	Not Detected
1,1-Dichloroethene	0.16	Not Detected	0.63	Not Detected
1,1-Dichloroethane	0.16	Not Detected	0.64	Not Detected
cis-1,2-Dichloroethene	0.16	Not Detected	0.63	Not Detected
1,2-Dichloroethane	0.16	Not Detected	0.64	Not Detected
trans-1,2-Dichloroethene	0.16	Not Detected	0.63	Not Detected

J = Estimated value.

**Container Type: 6 Liter Summa Canister (100% Certified)**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	117	70-130
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	114	70-130

Client Sample ID: BPS1-DUP03-082610

Lab ID#: 1008666B-20A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	p091415	Date of Collection: 8/26/10 4:00:00 PM
Dil. Factor:	1.71	Date of Analysis: 9/14/10 05:57 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.86	Not Detected	2.2	Not Detected
1,1-Dichloroethene	0.86	Not Detected	3.4	Not Detected
1,1-Dichloroethane	0.86	0.32 J	3.5	1.3 J
cis-1,2-Dichloroethene	0.86	39	3.4	150
1,1,1-Trichloroethane	0.86	14	4.7	74
Trichloroethene	0.86	220	4.6	1200
trans-1,2-Dichloroethene	0.86	0.63 J	3.4	2.5 J
1,2-Dichloroethane	0.86	0.16 J	3.5	0.65 J
Tetrachloroethene	0.86	7.8	5.8	53

*0.65 only Detected - KLF  
10/25/10 - Blank  
contamination*

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	100	70-130

Client Sample ID: BPS1-SVPM-ODA-082610

Lab ID#: 1008666B-21A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c090916	Date of Collection: 8/26/10 3:10:00 PM
Dil. Factor:	2.01	Date of Analysis: 9/9/10 10:19 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.10	0.0068 J	0.55	0.037 J
Trichloroethene	0.10	0.0074 J	0.54	0.040 J
Tetrachloroethene	0.10	0.036 J	0.68	0.24 J
Vinyl Chloride	0.20	Not Detected	0.51	Not Detected
1,1-Dichloroethene	0.20	Not Detected	0.80	Not Detected
1,1-Dichloroethane	0.20	Not Detected	0.81	Not Detected
cis-1,2-Dichloroethene	0.20	0.0064 J	0.80	0.026 J
1,2-Dichloroethane	0.20	0.025 J	0.81	0.10 J
trans-1,2-Dichloroethene	0.20	Not Detected	0.80	Not Detected

J = Estimated value.

**Container Type: 6 Liter Summa Canister (100% Certified)**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	111	70-130
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	89	70-130

Client Sample ID: Lab Blank

Lab ID#: 1008666B-22A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c090907a	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/9/10 01:53 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.050	Not Detected	0.27	Not Detected
Trichloroethene	0.050	Not Detected	0.27	Not Detected
Tetrachloroethene	0.050	Not Detected	0.34	Not Detected
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,1-Dichloroethane	0.10	Not Detected	0.40	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,2-Dichloroethane	0.10	Not Detected	0.40	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	105	70-130
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	87	70-130

Client Sample ID: Lab Blank

Lab ID#: 1008666B-22B

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	p091406c	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/14/10 12:03 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Trichloroethene	0.50	0.15 J	2.7	0.82 J
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
1,2-Dichloroethane	0.50	0.10 J	2.0	0.42 J
Tetrachloroethene	0.50	0.20 J	3.4	1.3 J

J = Estimated value.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	99	70-130

Client Sample ID: CCV

Lab ID#: 1008666B-23A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

<b>File Name:</b>	<b>c090902</b>	<b>Date of Collection: NA</b>
<b>Dil. Factor:</b>	<b>1.00</b>	<b>Date of Analysis: 9/9/10 09:32 AM</b>

Compound	%Recovery
1,1,1-Trichloroethane	95
Trichloroethene	98
Tetrachloroethene	107
Vinyl Chloride	84
1,1-Dichloroethene	94
1,1-Dichloroethane	90
cis-1,2-Dichloroethene	86
1,2-Dichloroethane	101
trans-1,2-Dichloroethene	88

**Container Type: NA - Not Applicable**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	105	70-130
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	99	70-130

Client Sample ID: CCV

Lab ID#: 1008666B-23B

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

<b>File Name:</b>	<b>p091402</b>	<b>Date of Collection:</b> NA
<b>Dil. Factor:</b>	<b>1.00</b>	<b>Date of Analysis:</b> 9/14/10 09:34 AM

Compound	%Recovery
Vinyl Chloride	100
1,1-Dichloroethene	101
1,1-Dichloroethane	101
cis-1,2-Dichloroethene	101
1,1,1-Trichloroethane	102
Trichloroethene	101
trans-1,2-Dichloroethene	101
1,2-Dichloroethane	103
Tetrachloroethene	102

**Container Type: NA - Not Applicable**

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	100	70-130

Client Sample ID: LCS

Lab ID#: 1008666B-24A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	c090904	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/9/10 11:39 AM

Compound	%Recovery
1,1,1-Trichloroethane	90
Trichloroethene	93
Tetrachloroethene	101
Vinyl Chloride	77
1,1-Dichloroethene	82
1,1-Dichloroethane	82
cis-1,2-Dichloroethene	81
1,2-Dichloroethane	96
trans-1,2-Dichloroethene	84

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	108	70-130
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	100	70-130

Client Sample ID: LCSD

Lab ID#: 1008666B-24AA

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

<b>File Name:</b>	<b>c090905</b>	<b>Date of Collection: NA</b>
<b>Dil. Factor:</b>	<b>1.00</b>	<b>Date of Analysis: 9/9/10 12:22 PM</b>

Compound	%Recovery
1,1,1-Trichloroethane	88
Trichloroethene	94
Tetrachloroethene	101
Vinyl Chloride	75
1,1-Dichloroethene	81
1,1-Dichloroethane	82
cis-1,2-Dichloroethene	81
1,2-Dichloroethane	97
trans-1,2-Dichloroethene	83

**Container Type: NA - Not Applicable**

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	110	70-130
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	100	70-130

Client Sample ID: LCS

Lab ID#: 1008666B-24B

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

<b>File Name:</b>	<b>p091403</b>	<b>Date of Collection:</b> NA
<b>Dil. Factor:</b>	<b>1.00</b>	<b>Date of Analysis:</b> 9/14/10 10:18 AM

Compound	%Recovery
Vinyl Chloride	102
1,1-Dichloroethene	92
1,1-Dichloroethane	98
cis-1,2-Dichloroethene	100
1,1,1-Trichloroethane	102
Trichloroethene	101
trans-1,2-Dichloroethene	101
1,2-Dichloroethane	98
Tetrachloroethene	99

**Container Type: NA - Not Applicable**

Surrogates	%Recovery	Method Limits
Toluene-d8	99	0-130
1,2-Dichloroethane-d4	100	0-130
4-Bromofluorobenzene	99	0-130

Client Sample ID: LCSD

Lab ID#: 1008666B-24BB

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

File Name:	p091404	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/14/10 10:35 AM

Compound	%Recovery
Vinyl Chloride	104
1,1-Dichloroethene	93
1,1-Dichloroethane	99
cis-1,2-Dichloroethene	101
1,1,1-Trichloroethane	104
Trichloroethene	102
trans-1,2-Dichloroethene	103
1,2-Dichloroethane	100
Tetrachloroethene	104

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	0-130
1,2-Dichloroethane-d4	99	0-130
4-Bromofluorobenzene	101	0-130

**APPENDIX E**  
**DATA VALIDATION SUMMARIES**



**Tetra Tech NUS**

## **INTERNAL CORRESPONDENCE**

**TO:** D. BRAYACK **DATE:** AUGUST 27, 2010

**FROM:** JOSEPH KALINYAK **COPIES:** DV FILE

**SUBJECT:** ORGANIC DATA VALIDATION – VOC  
NWIRP BETHPAGE CTO WE06  
SDG 1007700B

**SAMPLES:** 5 / Air / VOC

BPS1-AR003-INDB-5      BPS1-AR003-INDL-5      BPS1-AR003-ODA3  
BPS1-AR003-SSB3      BPS1-DUP01

### Overview

The sample set for NWIRP Bethpage SDG 1007700B consisted of five (5) air environmental samples. The air samples were analyzed for a select list of volatile organic compounds (VOC). There was one field duplicate pair associated with this sample delivery group (SDG); BPS1-DUP01 / BPS1-AR003-INDL-5.

The samples were collected by Tetra Tech on July 28, 2010 and analyzed by Air Toxics LTD. The analysis was conducted in accordance with EPA Method TO-15 analytical and reporting protocols. The data contained in this SDG was validated with regard to the following parameters:

- \*      •      Data completeness
- \*      •      Hold times
- \*      •      GCMS System Tuning and Performance
- \*      •      Initial/continuing calibrations
- \*      •      Laboratory Control Sample Recoveries
- \*      •      Laboratory Method Blank Results
- \*      •      Surrogate Spike Recoveries
- \*      •      Internal Standard Recoveries
- \*      •      Compound Identification
- \*      •      Compound Quantitation
- \*      •      Field Duplicate Precision
- \*      •      Detection Limits

The symbol (\*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is presented in Appendix D.

### Volatile

No issues were identified.

### Additional Comments

The initial sample analysis was performed on an instrument that yielded higher detection limits for the VOCs than previous analyses performed by the laboratory for this site. The laboratory was contacted on this issue

TO: D. BRAYACK  
SDG: 1007700B

PAGE: 2

and was asked to re-analyze the samples on an instrument that would yield lower analyte detection limits with results similar to historical data for the sample site region. The re-analysis data set was validated in this report. Results were similar to original analyses and the detection limits were significantly improved.

Positive results below the Reporting Limit (RL) and above the detection limit were qualified as estimated, (J), due to uncertainty near the detection limit.


The laboratory reported the VOC air result concentrations in units of both ppbv and  $\mu\text{g}/\text{m}^3$  on the sample forms. The results in the database and the qualified analytical result concentrations are reported as  $\mu\text{g}/\text{m}^3$  only.

#### EXECUTIVE SUMMARY

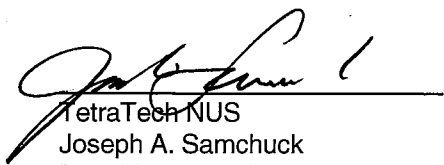
**Laboratory Performance Issues:** None.

**Other Factors Affecting Data Quality:** Positive results below the Reporting Limit (RL) and above the detection limit were qualified as estimated, (J), due to uncertainty near the detection limit.

The data for these analyses were reviewed with reference to the "Volatile Organic Analysis of Ambient Air In Canister By Method TO-15" EPA Region II SOP #HW-31 Revision #4 October 2006 and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (January 2006).



TetraTech NUS  
Joseph Kalinyak  
Chemist/Data Validator



TetraTech NUS  
Joseph A. Samchuck  
Data Validation Quality Assurance Officer

#### Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as Reported by the Laboratory
3. Appendix C - Region II Data Validation Forms
4. Appendix D - Support Documentation

## **Appendix A**

### Qualified Analytical Results

### **Value Qualifier Key (Val Qual)**

J – The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

UJ – The result is an estimated non-detected quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U - Value is a non-detect as reported by the laboratory.

UR – Non-detected result is considered rejected, (UR), as a result of technical non-compliances.

### **DATA QUALIFICATION CODE (QUAL CODE)**

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = GFAA PDS - GFAA MSA's  $r < 0.995$  / ICP PDS Recovery Noncompliance
- K = ICP Interference - includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- N = Internal Standard Noncompliance
- N01 = Internal Standard Recovery Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (e.g. base-line drifting)
- P = Uncertainty near detection limit ( $< 2 \times \text{IDL}$  for inorganics and  $< \text{CRQL}$  for organics)
- Q = Other problems (can encompass a number of issues; e.g. chromatography, interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = % Difference between columns/detectors  $> 25\%$  for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient  $r < 0.995$
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids  $< 30\%$
- Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 02019 SDG: 1007700B FRACTION: OV MEDIA: AIR	NSAMPLE	BPS1-AR003-INDB-5	BPS1-AR003-INDL-5	BPS1-AR003-ODA3	BPS1-AR003-SSB3				
	LAB_ID	1007700B-02A	1007700B-03A	1007700B-04A	1007700B-01A				
	SAMP_DATE	7/28/2010	7/28/2010	7/28/2010	7/28/2010				
	QC_TYPE	NM	NM	NM	NM				
	UNITS	UG/M3	UG/M3	UG/M3	UG/M3				
	PCT_SOLIDS								
	DUP_OF								
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE	1.9				3.3	0.07 J	P	2.3	
1,1-DICHLOROETHANE	0.55 U				0.65 U	0.86 U		0.65 U	
1,1-DICHLOROETHENE	0.54 U				0.64 U	0.84 U		0.64 U	
1,2-DICHLOROETHANE	2.8				1.6	0.27 J	P	1.4	
CIS-1,2-DICHLOROETHENE	0.54 U				0.64 U	0.84 U		0.024 J	P
TETRACHLOROETHENE	0.28 J	P	P		0.28 J	0.16 J	P	0.96	
TRANS-1,2-DICHLOROETHENE	0.54 U				0.64 U	0.84 U		0.64 U	
TRICHLOROETHENE	0.27 J	P	P		0.16 J	0.22 J	P	14	
VINYL CHLORIDE	0.35 U				0.41 U	0.54 U		0.41 U	

PROJ_NO: 02019 SDG: 1007700B FRACTION: OV MEDIA: AIR	NSAMPLE	BPS1-DUP01		
	LAB_ID	1007700B-05A		
	SAMP_DATE	7/28/2010		
	QC_TYPE	NM		
	UNITS	UG/M3		
	PCT_SOLIDS			
	DUP_OF	BPS1-AR003-INDL-5		
PARAMETER				
1,1,1-TRICHLOROETHANE		RESULT	VQL	QLCD
1,1-DICHLOROETHANE			2.9	
1,1-DICHLOROETHENE			1.3 U	
1,2-DICHLOROETHANE			1.2 U	
CIS-1,2-DICHLOROETHENE			1.5	
TETRACHLOROETHENE			1.2 U	
TRANS-1,2-DICHLOROETHENE			0.28 J	P
TRICHLOROETHENE			1.2 U	
VINYL CHLORIDE			0.15 J	P
			0.8 U	



**Tetra Tech NUS**

**INTERNAL CORRESPONDENCE**

**TO: D. BRAYACK DATE: OCTOBER 07, 2010**

**FROM: LEIGH A. CIOFANI COPIES: DV FILE**

**SUBJECT: ORGANIC DATA VALIDATION – VOC  
CTO WE06, NWIRP BETHPAGE  
SAMPLE DELIVERY GROUP (SDG) 1008666A**

**SAMPLES: 10 / Air /**

BPS1-AR002-ODA4	BPS1-AR002-ST05	BPS1-AR003-ST05
BPS1-AR004-ST05	BPS1-AR013-ST05	BPS1-AR014-ST05
BPS1-DUP01-20100824	BPS1-SVPM-2002D-082510	BPS1-SVPM-2002I-082510
BPS1-SVPM-2002S-082510		

**OVERVIEW**

The sample set for CTO WE06, NWIRP Bethpage, SDG 1008666A, consists of ten (10) air environmental samples. There is one (1) field duplicate pair included in this SDG: BPS1-AR013-ST05 (original) / BPS1-DUP01-20100824 (duplicate).

Samples were analyzed for volatile organic compounds (VOC). The samples were collected by Tetra Tech NUS on August 24 and 25, 2010 and analyzed by Air Toxics, Ltd. All analyses were conducted in accordance with EPA Method TO-15 analysis and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

- |   |   |                                       |
|---|---|---------------------------------------|
| * | • | Data Completeness                     |
| * | • | Holding Times                         |
| * | • | GC/MS Tuning                          |
| * | • | Initial/Continuing Calibrations       |
| * | • | Laboratory Method/Field Blank Results |
|   | • | Surrogate Recoveries                  |
| * | • | Laboratory Control Sample Results     |
| * | • | Internal Standards                    |
| * | • | Field Duplicate Precision             |
| * | • | Compound Quantitation                 |
| * | • | Compound Identification               |
| * | • | Detection Limits                      |

The asterisk (\*) indicates that all quality control criteria were met for this parameter. Qualified (if applicable) analytical results are summarized in Appendix A. Results as reported by the laboratory are presented in Appendix B. Appendix C contains Region II worksheets, and Appendix D contains the documentation to support the findings as discussed in this data validation report. The attached Table summarizes the validation qualifications which are based on the following information:

Volatiles

The surrogate spike recoveries for 4-bromofluorobenzene in samples BPS1-AR002-ST05 and BPS1-AR004-ST05 were greater than the laboratory acceptance limits. Positive results in samples BPS1-AR002-ST05 and BPS1-AR004-ST05 were qualified as estimated (J) on this basis.

Additional Comments

The Chain of Custody (COC) information for sample BPS1-DUP03-082610 did not match the sample tag upon receipt. The information on the COC was used to process the sample.

Positive results less than the reporting limit and greater than the detection limit were qualified as estimated (J) due to uncertainty near the detection limit.

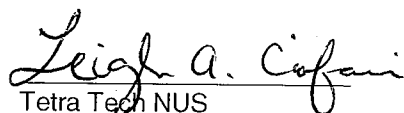
The laboratory reported the VOC air result concentrations in units of both ppbv and  $\text{ug}/\text{m}^3$  on the sample forms. The results in the database and the qualified analytical results are reported in units of  $\text{ug}/\text{m}^3$  only.

**EXECUTIVE SUMMARY**

**Laboratory Performance Issues:** Some results were qualified as estimated due to surrogate recovery noncompliance.

**Other Factors Affecting Data Quality:** Some results were qualified due to uncertainty near the detection limit.

The data for these analyses were reviewed with reference to the "Volatile Organic Analysis of Ambient Air in Canister by Method TO-15," SOP# HW-31, Revision #4, October 2006, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (January 2006). The text of this report has been formulated to address only those problem areas affecting data quality.



Tetra Tech NUS

Leigh A. Ciofani  
Environmental Scientist/Data Validator



Tetra Tech NUS

Joseph A. Samchuck  
Data Validation Quality Assurance Officer

Attachments:

- Appendix A – Qualified Analytical Results
- Appendix B – Results as Reported by the Laboratory
- Appendix C – Regional Worksheets
- Appendix D – Support Documentation

**APPENDIX A**

**QUALIFIED ANALYTICAL RESULTS**

**Data Validation Qualifier Codes:**

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = GFAA PDS - GFAA MSA's  $r < 0.995$
- K = ICP Interference - includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- N = Internal Standard Noncompliance
- N01 = Internal Standard Recovery Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (e.g. base-line drifting)
- P = Uncertainty near detection limit ( $< 2 \times$  IDL for inorganics and  $< \text{CRQL}$  for organics)
- Q = Other problems (can be any number of issues; e.g. poor chromatography, interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = % Difference between columns/detectors  $> 25\%$  for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient  $r < 0.995$
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids  $< 30\%$
- Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 02019 SDG: 1008666A FRACTION: OV MEDIA: AIR	NSAMPLE	BPS1-AR002-ODA4	BPS1-AR002-ST05	BPS1-AR003-ST05	BPS1-AR004-ST05	
	LAB_ID	1008666A-06A	1008666A-03A	1008666A-01A	1008666A-02A	
	SAMP_DATE	8/24/2010	8/24/2010	8/24/2010	8/24/2010	
	QC_TYPE	NM	NM	NM	NM	
	UNITS	UG/M3	UG/M3	UG/M3	UG/M3	
	PCT_SOLIDS					
	DUP_OF					
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE	0.062 J	P		2.4	0.17 J	PR
1,1-DICHLOROETHANE	0.86 U			0.053 J	0.061 J	PR
1,1-DICHLOROETHENE	0.84 U		PR	0.15 J	0.61 U	
1,2-DICHLOROETHANE	0.076 J	P	PR	1.7	0.15 J	PR
CIS-1,2-DICHLOROETHENE	0.84 U			0.61 U	0.024 J	PR
TETRACHLOROETHENE	0.16 J	P	R	2.4	1.9 J	R
TRANS-1,2-DICHLOROETHENE	0.84 U			0.61 U	0.61 U	
TRICHLOROETHENE	0.048 J	P	R	4.3	2.3 J	R
VINYL CHLORIDE	0.54 U			0.4 U	0.047 J	PR

<b>PROJ_NO: 02019</b> <b>SDG: 1008666A</b> <b>FRACTION: OV</b> <b>MEDIA: AIR</b>	NSAMPLE	BPS1-AR013-ST05	BPS1-AR014-ST05	BPS1-DUP01-20100824	BPS1-SVPM-2002D-082510
	LAB_ID	1008666A-04A	1008666A-05A	1008666A-07A	1008666A-08A
	SAMP_DATE	8/24/2010	8/24/2010	8/24/2010	8/25/2010
	QC_TYPE	NM	NM	NM	NM
	UNITS	UG/M3	UG/M3	UG/M3	UG/M3
	PCT_SOLIDS				0.0
	DUP_OF				
PARAMETER					
1,1,1-TRICHLOROETHANE	RESULT	VQL	QLCD	RESULT	QLCD
	0.31 J		P	0.34 J	P
1,1-DICHLOROETHANE	0.66 U			0.0088 J	P
1,1-DICHLOROETHANE	0.64 U			0.58 U	
1,2-DICHLOROETHANE	0.082 J		P	0.039 J	P
CIS-1,2-DICHLOROETHENE	0.64 U			0.58 U	
TETRACHLOROETHENE	2.2			2.5	4
TRANS-1,2-DICHLOROETHENE	0.64 U			0.58 U	
TRICHLOROETHENE	0.87			0.94	10
VINYL CHLORIDE	0.41 U			0.38 U	
					0.022 J
					P

PROJ_NO: 02019 SDG: 1008666A FRACTION: OV MEDIA: AIR	NSAMPLE	BPS1-SVPM-2002I-082510	BPS1-SVPM-2002S-082510			
	LAB_ID	1008666A-09A	1008666A-10A			
	SAMP_DATE	8/25/2010	8/25/2010			
	QC_TYPE	NM	NM			
	UNITS	UG/M3	UG/M3			
	PCT_SOLIDS	0.0	0.0			
	DUP_OF					
	PARAMETER					
1,1,1-TRICHLOROETHANE	RESULT	VQL	QLCD	RESULT	VQL	QLCD
		0.68			1.2	
1,1-DICHLOROETHANE		0.014 J	P		0.017 J	P
1,1-DICHLOROETHENE		0.037 J	P		0.071 J	P
1,2-DICHLOROETHANE		0.087 J	P		0.076 J	P
CIS-1,2-DICHLOROETHENE		0.64 U			0.58 U	
TETRACHLOROETHENE		1.8			3	
TRANS-1,2-DICHLOROETHENE		0.64 U			0.58 U	
TRICHLOROETHENE		8			17	
VINYL CHLORIDE		0.41 U			0.028 J	P



**Tetra Tech NUS**

## **INTERNAL CORRESPONDENCE**

**TO:** D. BRAYACK **DATE:** OCTOBER 07, 2010

**FROM:** LEIGH A. CIOFANI **COPIES:** DV FILE

**SUBJECT:** ORGANIC DATA VALIDATION – VOC  
CTO WE06, NWIRP BETHPAGE  
SAMPLE DELIVERY GROUP (SDG) 1008666B

**SAMPLES:** 11 / Air /

BPS1-DUP03-082610	BPS1-SVPM-11S-082610	BPS1-SVPM-12S-082610
BPS1-SVPM-2003D-082510	BPS1-SVPM-2003I-082610	BPS1-SVPM-2004D-082610
BPS1-SVPM-2004I-082610	BPS1-SVPM-2007D-082610	BPS1-SVPM-DUP02-082610
BPS1-SVPM-ODA-082510	BPS1-SVPM-ODA-082610	

### OVERVIEW

The sample set for CTO WE06, NWIRP Bethpage, SDG 1008666B, consists of eleven (11) air environmental samples. There are two (2) field duplicate pairs included in this SDG: BPS1-SVPM-2004I-082610 (original) / BPS1-SVPM-DUP02-082610 (duplicate) and BPS1-SVPM-12S-082610 / BPS1-DUP03-082610 (duplicate).

Samples were analyzed for volatile organic compounds (VOC). The samples were collected by Tetra Tech NUS on August 25 and 26, 2010 and analyzed by Air Toxics, Ltd. All analyses were conducted in accordance with EPA Method TO-15 analysis and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

- \* • Data Completeness
- \* • Holding Times
- \* • GC/MS Tuning
- \* • Initial/Continuing Calibrations
- Laboratory Method/Field Blank Results
- \* • Surrogate Recoveries
- \* • Laboratory Control Sample Results
- \* • Internal Standards
- \* • Field Duplicate Precision
- \* • Compound Quantitation
- \* • Compound Identification
- \* • Detection Limits

The asterisk (\*) indicates that all quality control criteria were met for this parameter. Qualified (if applicable) analytical results are summarized in Appendix A. Results as reported by the laboratory are presented in Appendix B. Appendix C contains Region II worksheets, and Appendix D contains the documentation to support the findings as discussed in this data validation report. The attached Table summarizes the validation qualifications which are based on the following information:

### Volatiles

The following compounds were detected in method blank 1008666B-22B affecting samples BPS1-DUP03-082610, BPS1-SVPM-11S-082610, and BPS1-SVPM-12S-082610 in Preparation Batch P100914A:

<u>Compound</u>	<u>Maximum Concentration</u>	<u>Action Level</u>
1,2-Dichloroethane	0.42 ug/m <sup>3</sup>	2.1 ug/m <sup>3</sup>
Tetrachloroethene	1.3 ug/m <sup>3</sup>	6.5 ug/m <sup>3</sup>
Trichloroethene	0.82 ug/m <sup>3</sup>	4.1 ug/m <sup>3</sup>

Action levels of 5x the maximum concentrations were used to evaluate sample concentrations for blank contamination. Sample aliquot and dilution factors were considered in evaluating for blank contamination. No action was necessary because all positive results for these compounds were greater than the corresponding action levels. Positive results for 1,2-dichloroethane less than the associated action level were qualified as non-detected due to blank contamination (U). Positive results less than the reporting limit that were qualified due to blank contamination were raised to the reporting limit.

#### Additional Comments

The Chain of Custody (COC) information for sample BPS1-DUP03-082610 did not match the sample tag upon receipt. The information on the COC was used to process the sample.

Positive results less than the reporting limit and greater than the detection limit were qualified as estimated (J) due to uncertainty near the detection limit.

The laboratory reported the VOC air result concentrations in units of both ppbv and ug/m<sup>3</sup> on the sample forms. The results in the database and the qualified analytical results are reported in units of ug/m<sup>3</sup> only.

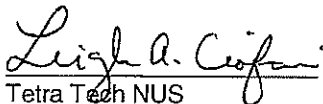
Samples prepared on 09/09/10 (BPS1-SVPM-12S-082610, BPS1-SVPM-11S-082610, and BPS1-DUP03-082610) had reporting limits of 0.5 ppbv, which is greater than the reporting limits specified in the statement of work, which listed reporting limits of 0.05 ppbv or 0.1 ppbv for all analytes. According to the laboratory narrative, samples BPS1-SVPM-12S-082610, BPS1-SVPM-11S-082610, and BPS1-DUP03-082610 were transferred from Low Level analysis to full scan TO-15 due to high levels of target compounds.

#### EXECUTIVE SUMMARY

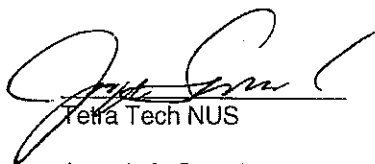
**Laboratory Performance Issues:** Two sample results were qualified as non-detected due to laboratory method blank contamination.

**Other Factors Affecting Data Quality:** Some results were qualified due to uncertainty near the detection limit.

The data for these analyses were reviewed with reference to the "Volatile Organic Analysis of Ambient Air in Canister by Method TO-15," SOP# HW-31, Revision #4, October 2006, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (January 2006). The text of this report has been formulated to address only those problem areas affecting data quality.

  
Tetra Tech NUS

Leigh A. Ciofani  
Environmental Scientist/Data Validator

  
Tetra Tech NUS

Joseph A. Samchuck  
Data Validation Quality Assurance Officer

Attachments:

Appendix A – Qualified Analytical Results  
Appendix B – Results as Reported by the Laboratory  
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**APPENDIX A**

**QUALIFIED ANALYTICAL RESULTS**

**Data Validation Qualifier Codes:**

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = GFAA PDS - GFAA MSA's  $r < 0.995$
- K = ICP Interference - includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- N = Internal Standard Noncompliance
- N01 = Internal Standard Recovery Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (e.g. base-line drifting)
- P = Uncertainty near detection limit ( $< 2 \times \text{IDL}$  for inorganics and  $< \text{CRQL}$  for organics)
- Q = Other problems (can be any number of issues; e.g. poor chromatography, interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = % Difference between columns/detectors  $> 25\%$  for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient  $r < 0.995$
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids  $< 30\%$
- Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 02019 SDG: 1008666B FRACTION: OV MEDIA: AIR	NSAMPLE	BPS1-DUP03-082610	BPS1-SVPM-11S-082610	BPS1-SVPM-12S-082610	BPS1-SVPM-2003D-082510	
	LAB_ID	1008666B-20A	1008666B-18A	1008666B-17A	1008666B-11A	
	SAMP_DATE	8/26/2010	8/26/2010	8/26/2010	8/25/2010	
	QC_TYPE	NM	NM	NM	NM	
	UNITS	UG/M3	UG/M3	UG/M3	UG/M3	
	PCT_SOLIDS					
	DUP_OF	BPS1-SVPM-12S-082610				
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE	74			71	1.2	
1,1-DICHLOROETHANE	1.3 J	P		1.2 J	0.026 J	P
1,1-DICHLOROETHENE	3.4 U			3 U	0.58 U	
1,2-DICHLOROETHANE	3.5 U	A		3.1 U	0.063 J	P
CIS-1,2-DICHLOROETHENE	150			140	0.58 U	
TETRACHLOROETHENE	53			55	2.5	
TRANS-1,2-DICHLOROETHENE	2.5 J	P	P	2.2 J	0.58 U	
TRICHLOROETHENE	1200			1200	5.2	
VINYL CHLORIDE	2.2 U		5.3 U	1.9 U	0.37 U	

PROJ_NO: 02019 SDG: 1008666B FRACTION: OV MEDIA: AIR	NSAMPLE	BPS1-SVPM-2003I-082610	BPS1-SVPM-2004D-082610	BPS1-SVPM-2004I-082610	BPS1-SVPM-2007D-082610	
	LAB_ID	1008666B-19A	1008666B-14A	1008666B-13A	1008666B-16A	
	SAMP_DATE	8/26/2010	8/26/2010	8/26/2010	8/26/2010	
	QC_TYPE	NM	NM	NM	NM	
	UNITS	UG/M3	UG/M3	UG/M3	UG/M3	
	PCT_SOLIDS					
	DUP_OF					
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE	0.23 J		P			
1,1-DICHLOROETHANE	0.64 U			0.2 J	1.5	
1,1-DICHLOROETHENE	0.63 U		P	0.072 J	0.041 J	P
1,2-DICHLOROETHANE	0.64 U			0.043 J	0.58 U	
CIS-1,2-DICHLOROETHENE	0.63 U		P	0.065 J	0.11 J	P
TETRACHLOROETHENE	5			0.61 U	0.95	
TRANS-1,2-DICHLOROETHENE	0.63 U			1.8	2.7	
TRICHLOROETHENE	0.36 J		P	0.015 J	0.054 J	P
VINYL CHLORIDE	0.4 U			0.28 J	1.5	
			P	0.016 J	0.036 J	P

PROJ_NO: 02019 SDG: 1008666B FRACTION: OV MEDIA: AIR	NSAMPLE	BPS1-SVPM-DUP02-082610				BPS1-SVPM-ODA-082510				BPS1-SVPM-ODA-082610			
	LAB_ID	1008666B-15A				1008666B-12A				1008666B-21A			
	SAMP_DATE	8/26/2010				8/25/2010				8/26/2010			
	QC_TYPE	NM				NM				NM			
	UNITS	UG/M3				UG/M3				UG/M3			
	PCT_SOLIDS												
	DUP_OF	BPS1-SVPM-20041-082610											
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
1,1,1-TRICHLOROETHANE		0.17 J	P		0.036 J	P		0.037 J	P				
1,1-DICHLOROETHANE		0.079 J	P		0.96 U			0.81 U					
1,1-DICHLOROETHENE		0.63 U			0.94 U			0.8 U					
1,2-DICHLOROETHANE		0.056 J	P		0.082 J	P		0.1 J	P				
CIS-1,2-DICHLOROETHENE		0.63 U			0.94 U			0.026 J	P				
TETRACHLOROETHENE		2.1			0.27 J	P		0.24 J	P				
TRANS-1,2-DICHLOROETHENE		0.63 U			0.94 U			0.8 U					
TRICHLOROETHENE		0.26 J	P		0.044 J	P		0.04 J	P				
VINYL CHLORIDE		0.028 J	P		0.6 U			0.51 U					